MARINE REVIEW.

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Lorain Ship Yard.—Modern Tools.

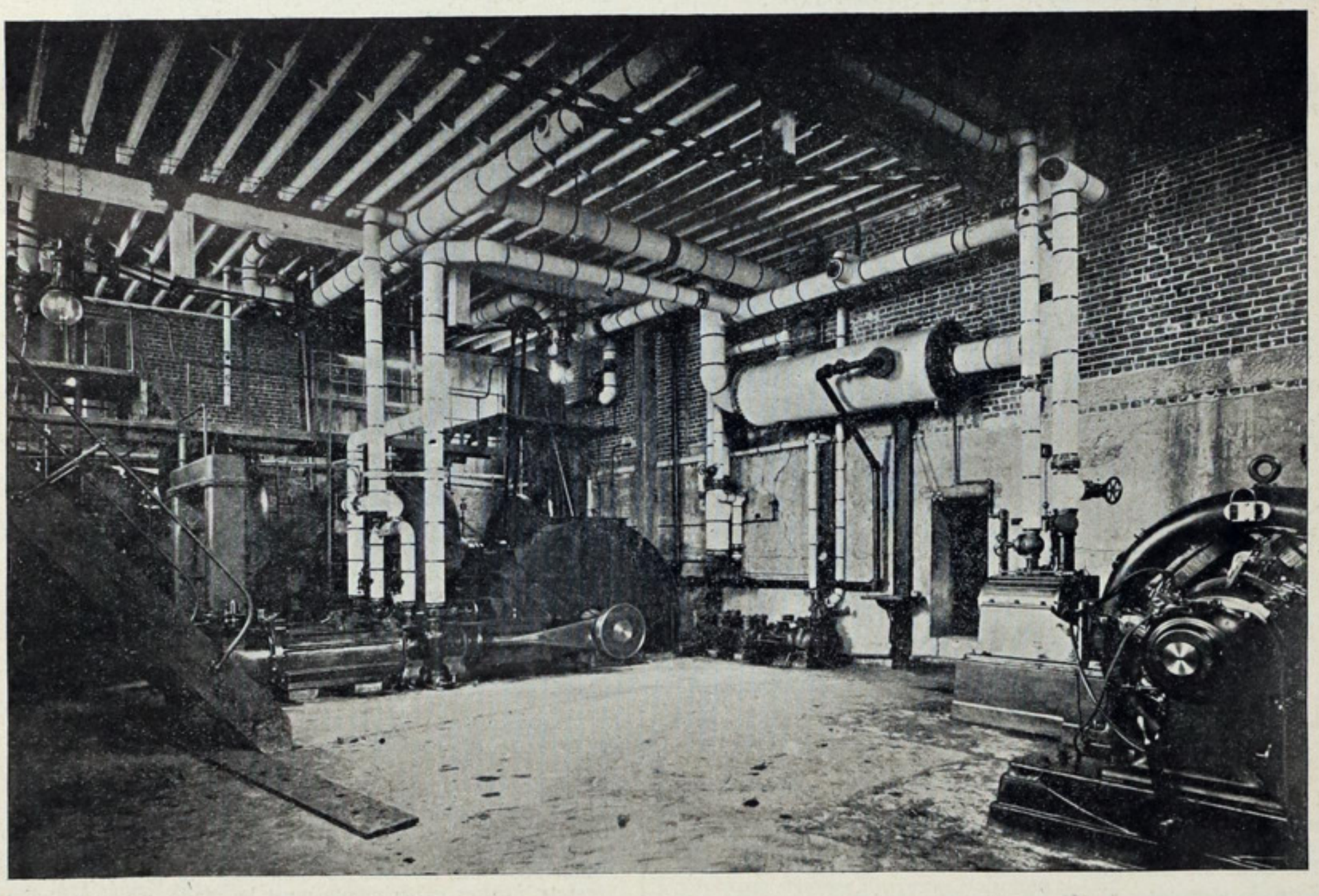
A large, clear engraving of the Cleveland Ship Building Co.'s new dry dock at Lorain, with one of the Rockefeller ore carriers in dock, is published as a supplement to this issue of the Review, and a view of part of the power house at the Lorain plant appears on this page. With the docking of this steamer, the Sir Wm. Fairburn, the Lorain ship yard was opened for business in all its departments, as repairs to vessels that did not require docking had already been in progress and two new steamers of the 450-foot class were partly in frame before preparations were made to open the dock. The picture of this dock, with the bow of a big freighter looming up in the foreground, is a forcible illustration of its great dimensions—560 feet long, 102 feet wide on top, 60 feet wide at a point 5 feet from the bottom and 17 feet from top of mitre sill to water surface.

A brief summary of other features of this ship yard, now that it is in full operation, will prove interesting, especially as the expenditure involved has caused the capital of the Cleveland Ship Building Co. to be increased to $1,000,000. The property of the company at Lorain, in addition to its machine shop, boiler works, foundry and old ship yard in Cleveland, covers twenty acres. It is about half a mile up the river from the Lorain harbor entrance, but the river at this point is about 400 feet wide and about 25 feet deep. Two slips on which the building berths, five in all, are located, are each 550 feet long and 125 feet wide. The power station (one central house for the entire works) is in the rear of the dry dock, while the main building for the operation of ship yard tools is a large structure just in the rear of the slips and building berths. Back of all this is a siding direct from the C., L. & W. and Nickel Plate railways, and there is also a switch running through the yard to a point on the river front where sheer legs of 60 tons capacity are located, and where engines, boilers and other heavy parts can readily be transferred from cars to new vessels or to vessels undergoing repairs.

In the power house there are two centrifugal pumps of 50,000 gallons capacity per minute, built by the Southwark Foundry & Machine Co. of Philadelphia, and capable of emptying the big dock in about an hour. An electric generator of 500 horse power in this building, as well as some thirty motors (there is one for each tool that is operated by electricity), was supplied by the Card Electric Co. of Mansfield, O., and the engine, a high pressure vertical, by the Atlas Engine Co. of Indianapolis. The duplex air compressor, also in this building, which is used to operate pneumatic hoists, pneumatic riveters and other tools in the ship yard, was made by the Rand Drill Co. of New York and is of 1,600 cubic feet capacity. This compressor has 14 by 22 duplex steam cylinders and 14 and 22 by 22 cross-compound air cylinders, with intercooler for cooling the air in its passage from the low-pressure to the high-pressure cylinder. The intake air cylinder heads are hooded, taking in cool air from the outside of the building. With all machinery new and modern in type, bright brass fittings and neat Magnesia covering everywhere, this power house is one of the most pleasing features of the ship yard. It indicates before passing on to the ships under construction and the main building for ship yard tools the extent to which electricity and pneumatic power are used in these departments. In the big shop connected with the ship yard—it is 90 by 250 feet—there are pneumatic hoists to work over each tool. These were made by Pedrick & Ayer of Philadelphia. There are also two electric cranes of 40-foot span, made by the Morgan Engineering Co. These run to the stock yard in the rear of the building, and at the other end connect with the two berth cranes of the ship yard, which are also electric cranes. These latter are of 7 tons capacity and 58 feet span and are operated in connection with the steel trestle work over each boat, which was erected by the Brown Hoisting & Conveying Machine Co. of Cleveland. The pneumatic riveters, of which there are several of various sizes in operation on the ships under construction, were made by the Chicago Pneumatic Tool Co.

The Southwark Foundry & Machine Co. has favored the Review with a description of the pumps referred to above. They have discharge openings 3 inches in diameter and each will deliver from 20,000 to 25,000 gallons of water per minute, when working under the highest efficiency. They are of the Southwark standard type, with horizontal shaft coupled direct to engines for driving same. The runner is of the double enclosed type, turned on the sides and rim, which insures a running balance and minimum friction. All openings are ample in size, and of such curve as to offer the least resistance to the flow. The runner is keyed to the shaft, the latter supported in two large bearings carried by the side covers of the pump case. The case is proportioned to maintain a uniform rate of flow and to prevent counter currents in the pump. The water enters the runner through large easy bends on each side, thus effectively balancing it and avoiding all lateral thrust on the shaft. These pumps are of heavy pattern, designed especially for dry dock service, and are the same as has been built by the Southwark Foundry & Machine Co. for many years for this class of work. This company's installations can be found in all the large dry docks of the United States government on the Atlantic coast, and also at Mare Island navy yard, California. In addition they have furnished these pumps to a number of private docks on the lakes and elsewhere.

In a saw mill also in operation at the new yard, there is a modern gang saw, jig saw, planer and other tools for either building or repairing wooden vessels.



INTERIOR OF POWER HOUSE AT THE WORKS OF CLEVELAND SHIP BUILDING CO., LORAIN, O.

Washington dispatches indicate that Capt. C. E. Benham is quite certain of being appointed collector of customs at Cleveland.

Officers of Detroit Transportation Companies.

The first Tuesday in February is the date on which, according to Michigan law, officers of lake transportation companies are usually elected. A large number of these companies have headquarters in Detroit. Nearly all of them elected officers on the 1st inst. The few that failed to do so are those managed by Capt. James Millen and the Messrs. Livingstone, which include the Michigan Navigation Co., Percheron Navigation Co., Hamtramck Transportation Co., Buffalo & Duluth Transit Co., Duluth & Atlantic Transportation Co., Swain Wrecking Co., Red Star Line and White Star Line. It is understood, however, that the law permits of officers being elected at any time during the month, and elections in these cases will be held later. Few changes in officers are made at these elections. Following is the result of elections held thus far:

Detroit & Cleveland Navigation Co.—James McMillan, president; Hugh McMillan, vice-president; W. C. McMillan, treasurer; David Carter, secretary and general manager. These and George Hendrie are directors.

Ogdensburg Transit Co.—E. C. Smith, St. Albans, Vt., president; A. McVittie, Detroit, vice-president; F. W. Baldwin, Ogdensburg, secretary and treasurer. The officers are directors.

Wolverine Steamship Co.—John B. Roby, president; W. M. Freer, vice-president; A. McVittie, secretary, treasurer and manager. These, with James McMillan and F. J. Hecker, are directors.

Dry Dock Navigation Co.—President, A. McVittie; vice-president, Frank E. Kirby; secretary and treasurer, G. N. McMillan. The same are directors.

Thompson Navigation Co.—E. L. Thompson, president; C. A. Chamberlin, vice-president; F. M. Thompson, treasurer; R. H. Phillips, secretary. The same are directors.

Michigan & Ohio Car Ferry Co.—E. H. Moreton, president and general manager; C. S. Turner, secretary-treasurer; the other directors being W. C. Maybury, Frank E. Kirby and J. W. Warwick.

Stewart Transportation Co.—George Peck, president; C. F. Bielman, secretary-treasurer; Capt. A. E. Stewart, vice-president and general manager. The other directors are George N. Fletcher and John Barlum.

J. Emory Owen Transportation Co.—J. F. Owen, president; W. J. Gray, vice-president and treasurer; J. C. Johnson, secretary.

Inter-Lake Transportation Co.—P. J. Ralph, president; C. D. Waterman, vice-president, and H. C. Ralph, secretary-treasurer.

State Transportation Co.—John Pridgeon, Jr., president; Joseph King, vice-president; B. W. Parker, treasurer; A. A. Parker, secretary and general manager. The officers are directors.

Peninsular Transit Co.—A. A. Parker, president and general manager; W. H. Oades, vice-president; Harry S. Hodge, treasurer; B. W. Parker, secretary. The officers, with A. R. Munger, are directors.

Parker Transportation Co.—A. A. Parker, president and general manager; A. R. Munger, vice-president; B. W. Parker, secretary; H. W. Dyar, treasurer. The officers, with F. B. Gaylord, are directors.

Pridgeon Transit Co.—John Pridgeon, Jr., president; John S. Quinn, vice-president; B. W. Parker, treasurer; A. A. Parker, secretary and manager. These, with A. R. Munger, are directors.

Northwestern Transportation Co.—H. H. Brown, president; L. C. Waldo, secretary, treasurer and general manager. These, with George E. Hartnell, S. E. Hartnell and D. A. McLachlan, are directors.

Ionia Transportation Co.—F. M. Thompson, president and treasurer; E. L. Thompson, vice-president; W. W. Kelly, secretary. These are directors.

Vulcan Transportation Co.—E. T. Peck, president; J. B. Baugh, vice-president; S. A. Baugh, second vice-president; James Findlater, secretary and treasurer. The officers are directors.

Progress Transportation Co.—C. A. Black, president; Charles White, vice-president; Alex McVittie, secretary and treasurer. The officers are directors.

Roby Transportation Co.—George W. Roby, president; Capt. John Duddleson, vice-president; L. C. Waldo, secretary and treasurer. These are directors.

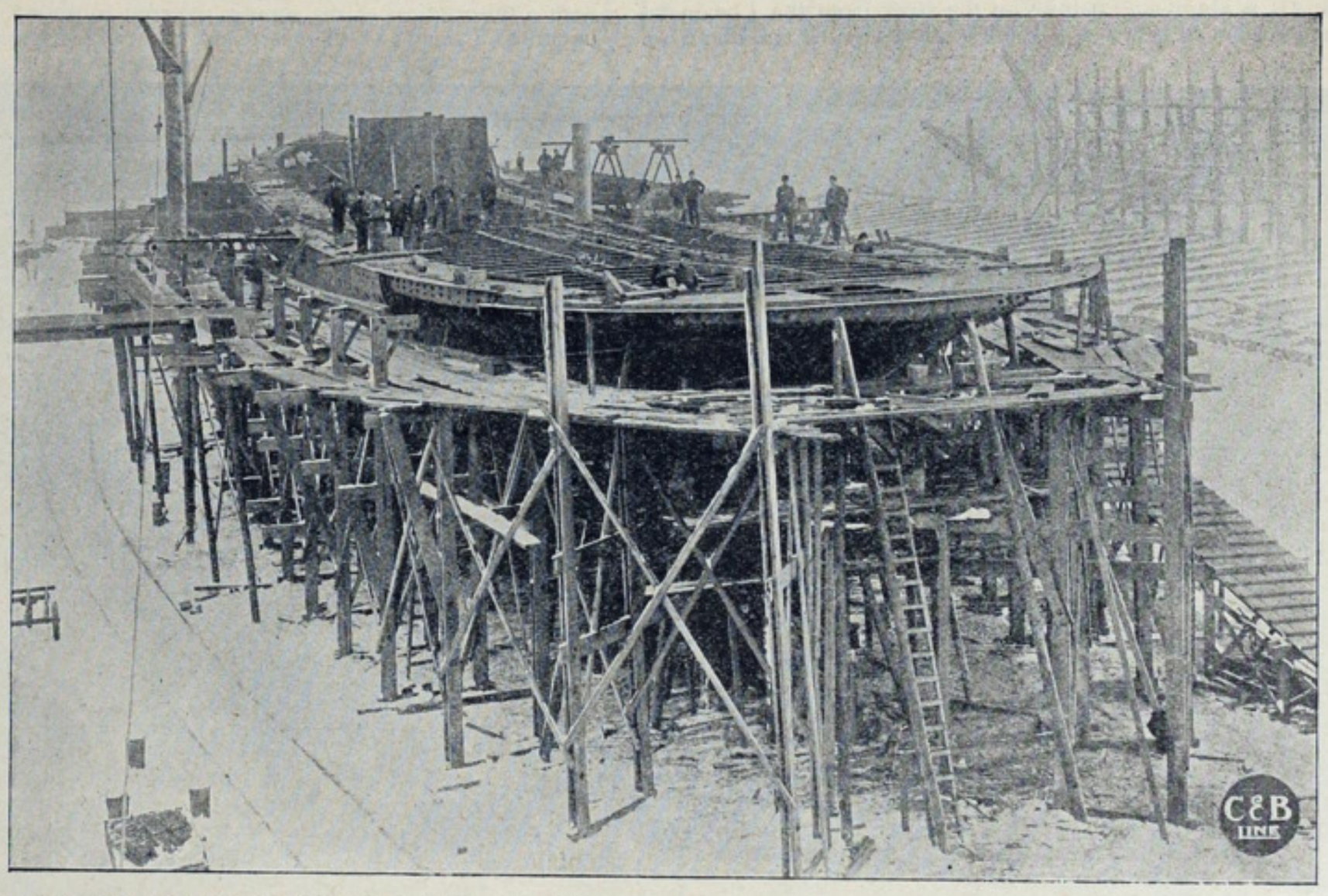
Whitney Transportation Co.—David Whitney, Jr., president and treasurer; D. C. Whitney, secretary and manager; John Dalzell, vice-president; other directors, Charles Stinchfield and R. Cuson.

Merida Transportation Co.—D. Whitney, Jr., president and treasurer; Charles Stinchfield, vice-president; D. C. Whitney, secretary and manager; other directors, James A. Remick and R. Cuson.

Marshall Transportation Co.—D. Whitney, Jr., president and treasurer; F. G. Austin, vice-president; D. C. Whitney, secretary and manager; other directors, G. Dunlap and R. Cuson.

Entirely Favorable to Oil Fuel.

Washington, D. C., Feb. 8.—As a result of experiments conducted at New York by a board of engineers on the torpedo boat Stiletto, and which have been under way for some time past, it is quite probable that an effort will be made to have all torpedo boats and other small vessels of the navy equipped, as soon as possible, with appliances for using oil fuel. All members of the board agree, in a report just submitted to the navy department, that in their estimation oil is much better fuel for a small boat like the Stiletto than coal; to prove its efficiency on large vessels, further experiments must be made, which will involve the completion of arrangements on board ship for the storing of large quantities of crude petroleum. Oil as a fuel on a boat of the size of the Stiletto was found to be cheaper than coal, was much easier to handle, there was less waste and higher calorific capacity, and at the same time the fire room force was reduced. On trial trips the Stiletto ran 28 miles and consumed one ton of coal, and 56 miles consuming one ton of oil. It is possible to readily remove the appliances for the use of oil when such fuel is unobtainable. As arranged on the Stiletto, the oil is run into the bunkers from the docks, and from the bunkers it runs into the fire boxes by means of gravity alone. This fact, of course, renders it possible to employ a smaller force of men than when coal is the fuel used. The board of engineers express themselves as satisfied with the oil-burning apparatus on the Stiletto, and recommend that it be continued in use; also that arrangements be made for installing the system in all the other torpedo boats.



NEW CLEVELAND & BUFFALO LINE PASSENGER STEAMER AS SHE APPEARED WHEN IN FRAME AND PARTIALLY PLATED AT THE SHIP YARD OF THE DETROIT DRY DOCK CO., WYANDOTTE, MICH.

Rolled steel floor plates are coming into use in a way that bids fair to displace the old cast-iron plate in a great many places. They are lighter, neater and stronger. They have been used for boiler and engine room plates in nearly all the merchant steamers recently built by the Cramps and the Newport News company. The shallow corrugations in cast-iron plates are apt to fill and wear, and they become slippery and dangerous, especially when used as engine room steps. Rolled plates are free from these objections. They are manufactured by Taylor & Lewis of Pittsburgh, and J. F. Corlett, Perry-Payne building, is the Cleveland sales agent.

The Late Supervising Inspector Matthew O'Brien.

Matthew O'Brien, supervising inspector of steam vessels, who died in New Orleans a few days ago, was a prominent figure among the few surviving officers of the Confederate navy. He was attached as engineer for the entire period of the war to the three most noted Confederate cruisers—the Sumter, the Alabama and the Shenandoah. He was sixty-one years of age. All of the newspapers of southern cities contained extended reference to his record of skill and bravery.

"The happy disposition that was one of Capt. O'Brien's characteristics in calm and in battle," says the New Orleans Picayune, "was preserved throughout his life, and was a distinguishing trait which endeared him to all who had occasion to know him, and to cultivate his acquaintance. One could listen for hours to O'Brien's stirring and entertaining recitals of deeds and incidents of life on the ocean wave. In his own graphic and sometimes humorous way, for he had the remarkable faculty of finding out and accentuating the ludicrous side of even the most dramatic incident, O'Brien would spin wondrous tales of blockade running; of chases by gunboats; of hair-breadth escapes; of overhauling of merchant vessels and of thrilling battles at sea. Gay, amiable, companionable, hale and hearty, sturdy, erect and vigorous, in spite of his having passed his sixtieth year. O'Brien was, not more than two or three months ago, the very embodiment of the gallant and 'tough' veteran who has seen death a thousand times and defied the grim archer every time. But the end that, sooner or later, is fated to come to every man, overtook him, and he has yielded to the inevitable. In his sixty-first year, yielding to the grim and ultimate destiny of man, the gray-bearded hero, in the gray, somber twilight of his declining years, met death as bravely and as unflinchingly as he had stared it in the face more than once when the shrieking, bursting shells filled the air around the Sumter and the Alabama and the Shenandoah; when solid shot pierced the very bowels of his ship, and when the rushing waters invaded the engine-room and extinguished the furnace fires. O'Brien's name is indissolubly linked with the history of the Confederate states navy."

Pensions in the Light-House Service.

Another bill providing for the retirement of certain officers and men in the light-house service of the United States has been introduced in the present congress. The measure is in the hands of Senator Perkins of California, who spent a great many years at sea and who claims that the lonely life and constant duties of light-keepers are of a kind that tend to bring on old age quickly. Senator Perkins' bill provides that a keeper or assistant keeper of any light-house or fog signal, or any officer or member of the crew of any light-ship or light-house tender, shall be placed on the retired list of the light-house department to be created by the act. Its provisions are as follows: When any such person shall have reached the age of sixty-five years and shall have served continuously for twenty-five years, he shall thereafter receive three-fourths as much salary as he was receiving at date of retirement. When such person shall have reached the age of sixty-five years and served not less than fifteen years, he shall receive one-half as much salary as he was receiving at date of retirement. At the age of sixty-five, after ten years' service, such person shall receive one-third as much salary as he was receiving at date of retirement. When any such person shall be permanently disabled by injury received or disease contracted while in the performance of duty and after due examination by a board of surgeons, he shall thereafter receive three-fourths as much salary as he was receiving at date of retirement. In case of the death of a keeper or assistant keeper of any light-house or fog signal, or an officer or member of the crew of any light-ship or light-house tender from injuries received or disease contracted in the performance of duty, his widow and minor children shall be entitled to receive the same pension as now paid to widows and minor children of non-commissioned staff officers of the army. A retirement fund is to be created by deducting 3 per cent. of the salaries of officers and men in the light-house service.

On Feb. 1 the list of orders for Howden hot draft equipments booked by the Dry Dock Engine Works of Detroit numbered fifty-two, including the R. R. Rhodes, in which an equipment will be installed by the Cleveland Ship Building Co., and the Caledonia, which is the second vessel of the Corrigan fleet to be equipped this season. These orders will increase the total horse power of Howden equipment to about 61,000. A letter from Mr. Howden, inventor of the draft, says that from a list made up to Jan. 15 it is found that upon adding orders now in hand to equipments already installed the total throughout the world is 691, aggregating 1,748,100 horse power.

An advertisement elsewhere in this issue offers for sale the steamer Andrew Johnson, formerly a revenue cutter. Nothing is said of the intention of Cleveland naval reserves regarding another boat. They are asking only a reasonable figure for the Johnson. Several hundred dollars was spent on her engines last summer, and it is understood that they are alone worth considerable more than is asked for the vessel. The Johnson might readily be applied to excursion business. She is a side-wheel steamer of 310.49 tons gross and 195.61 net. Engines are of the vertical beam condensing type, 48 inches diameter of cylinder and 9 feet stroke. The engines are in excellent condition.

A dispatch from Duluth says that while the actual first cost of the Duluth, Mesabi & Northern Ry. (Rockefeller ore road) was not more than $10,000 a mile, the gross earnings for the last fiscal year have been $11,284 per mile and the net earnings $7,187 per mile. We will not vouch for the correctness of these figures but it is well known that this railway is a Klondyke.

Side Tanks for Water Ballast.

Another novelty in ship construction is being submitted to a practical test. A cargo steamer building at West Hartlepool, England, is being fitted with side tanks for water ballast, in addition to those in the bottom of the vessel. The steamer thus constructed was made the subject of discussion at a recent meeting of engineers and ship builders at West Hartlepool. "The argument of the paper advocating the use of side tanks," says the Engineer of London, "was to the effect that there is need for a more efficient system of water ballasting, which is becoming imperative with the cargo steamer. The weight of the vessel itself has been affected by the substitution of steel for iron, whilst the weight of the machinery does not advance concurrently with the size of the vessel; its greater efficiency also renders the coal consumption less for the work, and consequently the stock of coal does not increase with the ratio of the increased size. It is found, too, that some of the cargo steamers have to do more steaming light, and all these factors influence the need for water ballast. This system of fitting water-ballast tanks on the sides of steamers, it is claimed, fulfills the requirements of the large modern cargo steamers; it has several incidental advantages. In the discussion that took place there was a criticism more of the theory of the need than of the side tanks themselves. It was contended that it was unwise to provide so much for the running of the steamer light when the duty to be aimed at was rather that of running loaded, and when such provision for steaming light would of necessity limit the space that could be devoted for cargo purposes. Apart from this consideration, the expression of opinion of ship builders and of ship owners seemed to be in favor of the proposal to carry water ballast when needed in the side tanks, though details as to the possibilities of corrosion and the effect of the introduction on the methods of ventilation were dwelt upon."

The Right Kind of Heroism.

There is something suggestive of the old-time heroism of the sea in the story of the crew of the City of Duluth, recently wrecked at St. Joseph, Mich. The chief officer, for instance, Capt. Donald Maclean, seems to have acted just as ships' captains are expected to act in times of great peril. From the moment the vessel struck the bar off St. Joseph it must have been apparent to all the experienced seamen on board that she was doomed. For five dreary hours, in which efforts were being made to rescue the ship's people by means of the breeches buoy, the men of the Duluth had to face the terrors of what must have seemed to be a certain prospect of death. In all this time Capt. Maclean devoted himself to the saving of the people who were on the ship with him. Not until the last man had been drawn ashore did he look out for himself. He remained alone on his ship, deliberately and voluntarily risking his life in the performance of his duty. There is no mock heroic sentiment in deeds of this sort. The circumstances themselves, terrible though they may be, are quite as matter-of-fact and commonplace as are most of the tragedies of life. There is nothing in the situation of very great peril to urge a man on to the heroism which he is popularly supposed to display as a matter of spontaneous impulse. It is simply cool-headed obedience to the call of duty that brings out the finest displays of courage, and duty itself is merely the high moral purpose which enables a man deliberately to follow the course that is right. That course is usually "the path of greatest resistance." It is not the applause of theatrical heroism which should follow these displays of courage. They are to be recognized soberly and gratefully as denoting the highest conceivable trait which a man may have—the unfailing resolve to do to the utmost the things set for him to do. This kind of heroism may manifest itself in the rescue of men at the grave peril of the rescuer's life. It may be displayed in the painful drudgery of the man who toils night and day in order to support a family. In either event it is the mark of a real man and is to be upheld as one of the finest traits known in an age devoid of romance and which has learned to disdain merely theatrical heroics.—Record, Chicago.

A Promising Young Engineer.

John L. Simmons, a promising young engineer, who belonged to a family well known on the lakes, died in Detroit, a few days ago. He was a son of Geo. L. Simmons, engineer of the wrecking steamer Favorite, stationed at Cheboygan. A brother, Thomas G. Simmons, is mate of the steamer City of Buffalo. Alike to most young men now in charge of the engine rooms of lake steamers, the deceased was a student of the technical side of his profession and had every hope of advancement. He was only twenty-six years of age, but had charge during the past season of engines of the Arnold line passenger steamer Islander, operating in the vicinity of the Straits of Mackinaw. With the close of the passenger season he laid up the Islander and was then given employment as chief engineer of the steamer R. J. Hackett of Detroit, which was in ordinary during the early part of the season. Death resulted from the effects of an operation performed at the Marine hospital, Detroit. Mr. Simmons was a member of the Marine Engineers' Beneficial Association, No. 3, of Detroit, and was also a member of the Masonic fraternity. The funeral, which took place from the residence of his brother, Thomas G. Simmons, No. 586 East Congress street, Detroit, was attended by representatives of both of these organizations.

JOHN L. SIMMONS.

The Marietta Boiler Works, Marietta, O., was the lowest bidder for the work of constructing a steel tow boat for river service, to be under the direction of the United States engineer at New Orleans. The bid of the Marietta concern was $27,000; Iowa Iron Works, Dubuque, Iowa, $27,750; Schultz Bridge & Iron Co., Pittsburg, $30,000.

Around the Lakes.

Capt. Alex. Begg of Bay City will command the steel steamer S. J. Murphy the coming season.

A cluster of piles bearing a light has been erected to mark the wreck of the steamer City of Duluth, which lies due west of the north pier near St. Joseph harbor, Lake Michigan.

Superior City has been decided upon as the name of the steel steamer now on the stocks at the yard of the Cleveland Ship Building Co. in Lorain for the Zenith Transportation Co., of which A. B. Wolvin of Duluth is the head. The tug building at Hingston & Sons yard, Buffalo, for southern waters will be named William Magee.

The big ship-owning companies are following more and more each year the practice of promoting mates and second engineers when vacancies occur. An official of the several lines managed by Pickands, Mather & Co., says they have found the practice especially advantageous of late among the engineers.

The Milwaukee Evening Wisconsin still insists that the whaleback passenger steamer Christopher Columbus is now controlled by interests that are practically indentical with those of the Goodrich Transportation Co. of Chicago, and that negotiations are still pending for a consolidation of Lake Michigan passenger lines.

Senator M. A. Hanna of Cleveland, Representative Mahany of Buffalo and other members of congress, who are interested in the station to be selected for one of the new revenue cutters building at Cleveland, are said to have agreed that the vessel shall spend alternate years at Buffalo and Cleveland, and it is reported that treasury department officials are favorable to this plan.

Detroit's excursion and tourist business on passenger steamers in the summer season is very large. Supervising Inspector Galwey of the steamboat inspection service reports that 5,303,119 people were carried in and out of Detroit on passenger steamers during 1897. The number reported from Chicago is 500,238; Port Huron, 748,744; Grand Haven, 512,415; Milwaukee, 317,425; Marquette, 134,133.

It is understood that Capt. J. F. Cottrell of the steamer Victory will not sail next season, as he is to give attention to a cattle ranch, in which he has been interested for some time past. Capt. H. M. Boyce of Milwaukee is to retire from the command of the steamer Omaha. He will be succeeded by Capt. David Wilson of Detroit, master of the steamer Elfin-Mere for several seasons past. Capt. Boyce has been master of the Omaha since the spring of 1895.

Capt. Alex. McDougall has returned from the Pacific coast, where he went, in advance of the annual meeting of the American Steel Barge Co., to ascertain what the opportunities were for operating the company's ship yard at Everett in the construction of vessels for Alaskan trade. He says that the prospect was not encouraging for the reason that boats under construction for Yukon river service do not require the facilities that are provided by a modern ship building plant.

Tod, Stambaugh & Co. of Cleveland have purchased from Receiver Thos. M. Wells of the Escanaba River Land & Iron Co. the Swanzy mine at Swanzy, Mich., and other property of that company for $85,000. The property is in Marquette county, Michigan. There are 175,000 tons of ore in sight, about half of it being Bessemer. Analysis of the Bessemer ore shows 66 and 67 in iron and about .045 in phosphorus. The mine will be actively wrought and it is probable that 75,000 to 100,000 tons of ore will be taken out in 1898.

The Montague Iron Works of Montague, Mich., has closed a contract with the Craig Ship Building Co. of Toledo for two fore-and-aft compound engines, each 12 and 14 by 16, which are to be placed in a large steel tug now being built by the Craigs for service in Alaskan waters. The same concern is also building a fore-and-aft compound engine, 14 and 30 by 20; also a marine boiler, 8 by 12 feet, for a tug now being constructed by E. W. Heath at Benton Harbor for the Lydon & Drews Co. of Chicago.

Officials of the Toledo, St. Louis & Kansas City Ry. (Clover Leaf route) are negotiating for a lease of the steamers Badger State and Empire State with a view to making a trial of passenger business in connection with the freight line which they have been operating for several years past between Toledo and Buffalo. The route is now covered indirectly by the Cleveland & Buffalo Transit Co., through connection at Cleveland with the Cleveland, Put-in-Bay and Toledo line, which is operated jointly by the Detroit & Cleveland Navigation Co. and the Cleveland & Buffalo Transit Co.

A model of the first 1,000 feet of the new Buffalo breakwater has been prepared under the direction of Major Thomas W. Symons at the United States engineer office, Buffalo. The model is made from careful measurements of the work completed when cold weather put a stop to operations last fall. It is of wood and plaster, on a scale of 10 feet to the inch, and shows exactly the shape of the pile of stone which forms the completed part. The model is something over 8 feet long. At the ends and center are wooden sections, showing the shape of the breakwater when completed.

Another lake and rail route from Chicago to the seaboard is planned for next season. George J. Harris, who recently resigned as Chicago agent of the Ogdensburg Transit Co., and was appointed general western agent of the Canada-Atlantic Transit Co., is a prime mover in the scheme. The Canada-Atlantic Railway spans the province of Ontario between Lake Huron and the St. Lawrence river. Its western terminus is at Parry Sound on Georgian bay. The vessels will therefore run between Chicago and Parry Sound. The new company is said to have completed arrangements for a 425-foot dock and freight house in Chicago, just above the Ogdensburg company's docks, and Mr. Harris has secured options for the purchase or lease of several vessels that may be readily equipped for package freight business.

E. W. Heath of Benton Harbor, Mich., who makes a specialty of building wooden tugs, has been awarded the contract for the construction of the Milwaukee Tugboat Co.'s new boat. The keel length of the new tug will be 84 feet; length over all, 95 feet; beam, 22 feet; molded depth, 12 feet. Her engine will be a triple-expansion, with cylinders of 14, 22½ and 36 inches diameter and 30 inches stroke. The boiler will be of Scotch type, 12 feet long and 10 feet in diameter. Mr. Heath has until August 1 to complete the hull, which indicates that the tug is not expected to go into service before September 15. Work upon the engine, which is to be built by the Sheriffs Manufacturing Co., may not be commenced until the season of navigation is reached. The construction of the boiler is already in progress at the Manitowoc Boiler Works.

The tactics of one of the Duluth harbor tug lines that was involved in a failure not long ago, causing a great deal of trouble for a number of people in the vessel business, are not pleasing to the patrons of any of the tug lines at the head of the lakes. A report recently circulated was to the effect that the Barry brothers, who have been very successful in tug business at Chicago and Duluth, were to retire from Duluth. In answer to this, Capt. Miles Barry says: "I hope you will enter positive denial of the statement that we have any thought of selling out our Duluth line. The Barrys have gone to Duluth with the same spirit that characterized their Chicago venture, and we leave it with our friends and business associates to determine the result of our staying abilities. We have associated with us in the Duluth enterprise several well-known vessel owners, including James Davidson, Waldo A. Avery and Henry A. Hawgood, whose names give assurance of success."

Tests of Releasing Hooks.

Editor Marine Review:—The board of supervising inspectors of steam vessels, holding its annual session in Washington, composed of Supervising Inspector-General James A. Dumont, and Supervising Inspector Starbuck of this city (New York), Galvin of Buffalo, Chancellor of Cincinnati, Mirtaugh of Norfolk, Tibbals of St. Paul and Birmingham of San Francisco, adjourned over to this city on Tuesday last to make a test of two boat-disengaging devices, which had been presented before them for their approval; for which purpose the secretary of the treasury had placed at their disposal the United States steam revenue cutter Dexter, commanded by Capt. Chas. A. Abbey. One of the devices, represented by Capt. J. H. Brown of Buffalo, is known as the lever pulling device, and the other, represented by Capt. James R. Raymond of this city, is known as the Standard automatic releasing hook.

Pursuant to arrangement, notwithstanding the bitter cold and inclement weather, the board, headed by General Dumont, went this morning aboard the cutter Dexter, lying in Erie basin, off Brooklyn, and at 10 o'clock got under way and steamed down the bay until off Stapleton, Staten island, where the stiff northwest wind then blowing made a pretty rough sea. Both Captains Raymond and Brown were on board with boats fitted with their devices for the purpose of testing them. Capt. Brown's boat was first lowered, and became disengaged successfully three times. Failure attended the fourth trial, but as it is not the intention to pass judgment on the hooks in advance of the conclusions of the inspectors, it is probably best to refrain from comment regarding the cause of this failure. The boat fitted with the Standard automatic releasing hook of Capt. Raymond was lowered five times consecutively most successfully, while the vessel was steaming ahead at a good rate of speed in a rough sea. It was lowered first bow down, then stern down, then on a level, then with a sea on the quarter, and, finally, by order of Supervising Inspector Birmingham, it was lowered just enough to clear the water. This was done to see if the slight touch of the waves would not disengage the boat, but it did not, as the hooks held the boat firmly, whilst it cut through the waves. Every test worked without a hitch, and the proof was conclusive that the device will not release the boat until it is waterborne and the hooks relieved entirely from the weight of the boat. One of the best features of this device was seen when the weight of the boat was relieved from the forward hook, as it showed that the after hook became detached at the same time, and vice versa. It was thought that with the steamer headed so as to bring the sea on the quarter the boat, thrown against the side of the steamer as it was being lowered, would become disengaged on account of the steamer's rolling, but it did not do so, as the hooks held firmly until the boat became waterborne; then it instantly became disengaged and cleared away from the vessel. Capt. Raymond is to be congratulated upon his success with this device, which is already used by all vessels of the United States government, and by many of the largest merchant steamships and pleasure craft. In view of the success of these tests, it is more than probable that this device will receive the approval of the supervising inspectors, as it more than fulfills the requirements of the law. Every attention and courtesy was extended to the board and the visitors by the officers and crew of the Dexter, of which Capt. Charles A. Abbey is the commander. The executive officer is Lieut. Frederick E. Dodge; second lieutenant, Ernest F. Mead; chief engineer, M. T. Chevers; assistant engineer, T. G. Lewton. The inspectors returned to Washington the same evening to resume their sessions there.

M. F. DOOLEY.

New York, Feb. 3, 1898.

Examination of Steamboat Inspectors.

The action of the treasury department in requesting the civil service commission to undertake the examination of all members of local boards of the steamboat inspection service who were appointed previous to the application of civil service rules to this branch of the department, and who were not afterward required to take the regular examination, may cause some disturbance in the service. These examinations in lake cities where local boards are located will take place in a few days. The order has occasioned surprise among vessel men, and there are some who incline to the opinion that it is prompted by political desires, for the reason that criticism of the service for a long time past has been directed against the supervising board more so than the local officials, and nothing is now said about improvement in this board. The examination of local inspectors, as indicated by the civil service manual of examinations, may be made to include a severe test on technical subjects.

Seeking More Aids to Navigation.

Capt. Geo. P. McKay of the Lake Carriers' Association is now in Washington consulting members of congress and officials of the light-house service regarding a large number of aids to navigation, especially gas buoys, for which appropriations have been requested. There were on the lakes last season forty gas buoys, and the effort now is to secure in the general buoyage fund an appropriation of $40,000 to provide for twenty more. Seventeen of the new lot of twenty buoys are for additional locations that have been recommended by the district officers and three are intended for reserve purpose. It is the intention of officials of the Lake Carriers' Association to also do all in their power towards assisting the light-house officials in securing appropriations for two new tenders, vessels costing about $100,000 each, that will be especially suited to caring for this large number of buoys.

Of the forty gas buoys on the lakes last season, eleven were held for reserve purposes and twenty-nine others, in addition to the two Canadian buoys in Pelee passage, Lake Erie, were stationed as follows: Seven at various points in the St. Lawrence river between the foot of Lake Ontario and the port of Ogdensburg; one on Charity shoal, Lake Ontario; two in Erie harbor; one on Starve island reef, Lake Erie; two in Maumee bay, Toledo harbor, Lake Erie; three at Ballard's reef channel, Detroit river; one on the northwesterly side of the lower entrance to 20-foot channel, Lake St. Clair; one on the Port Huron middle ground, St. Clair river; one at Detour reef, Lake Huron, at westerly side of entrance to St. Mary's river; one at the turning point in Mud Lake, St. Mary's river; one at the turning point, Dark Hole, St. Mary's river; one at Hay Lake channel entrance, northerly end of Little Mud lake, St. Mary's river; one on Round island middle ground, St. Mary's river; one on Fisherman's shoal, Lake Michigan; one on Wiggins point shoal, Lake Michigan; one on Lansing shoal, north of Squaw island, Lake Michigan; one at Poverty island shoal, entrance to Green bay, Michigan; one on Gravelly island shoal, entrance to Green bay, Lake Michigan; one on Whaleback shoal, Green bay, Lake Michigan.

Buffalo Grain Shoveling.

Mr. James Corrigan and other members of the Lake Carriers' Association who were on the committee that gave the Buffalo grain-shoveling contract to W. J. Conners, say that they did not expect to settle the question of charges with Buffalo elevator managers without a struggle. The steamer Caledonia, one of Mr. Corrigan's vessels that was unloaded in Buffalo a few days ago, was charged last year's full rate, but the work was done by Conners and the money was paid under protest. The new contractor has taken the stand that he will pay the elevators $1 per thousand bushels for the use of the steam shovels, as against $1.35 paid last year. The proposition, therefore, is to have the steam shovels stand 35 cents of the 40-cent reduction that has been made to the vessels. In the case of the Caledonia, the elevator managers were willing that the price of shoveling fixed at Detroit, $2.95 for labor, steam shovels and contractor, should prevail, if the work was done by Kennidy, who had the contract last year, but this proposition was not, of course, accepted by Mr. Corrigan. It is probably well that the first vessel to be unloaded this year is owned by Mr. Corrigan, as the vessel owners generally have confidence in his fighting abilities on questions of this kind. Just now the Buffalo elevator situation is disturbed on account of the expressed willingness of some of the elevators to accept the $1 rate for the shovels, and the uncertainty regarding an elevator pool for next year. It is therefore probable that the shoveling question will remain in abeyance for some time, but it is certain that the vessel owners, who are determined to support Contractor Conners, will, if necessary, take up the whole question of elevating charges with the state authorities at Albany, and as a last resort they say they will equip their vessels with steam shovels.

John McDowell, who was in charge of ship yard affairs at the works of the Chicago Ship Building Co., up to a short time ago, is now in charge of the yards of the Harlan & Hollingsworth Co. of Wilmington, Del. He is finding plenty of work in his new position. In addition to two or three large orders already in hand, this company is said to have just contracted with the Virginia & Carolina Chemical Co. of Richmond, Va., for a freight steamer of 275 feet length, 41 feet beam and 22 feet depth. A rebuild of the steamer Glenochil, which recently sustained extensive injuries, is another job that will require about thirty days for completion. This is the Delaware river yard at which the $300,000 steel steam yacht for Howard Gould is building. The Roach yard at Chester, Pa., is another one of the eastern ship building concerns that is well supplied with work. They have just closed a contract with the Standard Oil Co., through Mr. R. C. Veit of New York, for a tank steamer that will be 264 feet long, 40 feet beam and 23 feet deep, and will have a capacity for 720,000 gallons of oil in bulk. Engines will be of the triple expansion type, with cylinders 22, 35 and 56 inches in diameter, and a stroke of 42 inches. They are expected to develop about 1,800 horse power, driving the ship at a speed of about 14 knots. Two boilers will each be 14½ feet in diameter and will be allowed 180 pounds working pressure. This new oil steamer will be No. 297 at the Roach yard, where there are five other vessels in course of construction. The list includes the Brooklyn & New York Ferry Co.'s steamer Joseph J. O'Donohue, due to leave before March 1, which is No. 292; No. 293 is the 3,300-ton steamer Horatio Hall, for the Maine Steamship Co., which will leave the yard before June 1; No. 294 is a yacht for a New England party, from plans of Gardner & Cox of New York; No. 295 is another yacht on similar lines; No. 296 is the new passenger steamer for the New York, Philadelphia & Norfolk Railroad, for service on the route between Cape Charles City, Va., and Norfolk, which will be delivered some time late in the summer.

Some 300 men are at work on the new Cleveland & Buffalo line steamer City of Erie, building at the Wyandotte works of the Detroit Dry Dock Co., and it is expected that the big side-wheeler will be launched in a few days. She will be the 126th ship built by the Detroit Dry Dock Co.

More than 20,000 Tons in a Single Year.

The Marine Review is charged with having made a mistake in a statistical article published recently. We said it was "more than probable that no ship building concern on the lakes had ever launched vessels aggregating 20,000 tons in a single year." This is a mistake, but it will probably be excused in view of the fact that for about eight years past the Review has been compiling and publishing a systematic collection of lake statistics that have undoubtedly been more widely copied than the statistics of any other branch of commerce in this country. Probably 90 per cent. of the reliable summaries of lake commerce that have been published since the construction of steel ships was begun on the lakes have emanated from the office of the Marine Review. This is not said in a boastful spirit. It is prompted by the effort that has been made in certain quarters to direct attention to the error referred to above.

One of the leading ship building concerns of the lakes, the Globe Iron Works Co. of Cleveland, did turn out ships of more than 20,000 registered tons in a single year, and it is probably well that the error was made, as it affords opportunity to refer to the creditable ship building record of this company. In 1889 and 1890 launches occurred at the Globe yard almost every month. The tonnage of ten ships launched by that company in 1890 was 23,366.16, while that of eight ships launched in 1889 was 18,962.41 tons. Following is the company's record of launches in these two years:

Name of Vessel.	When Launched.	Gross Registered Tonnage.
Northern Wave	Jan. 3, 1889	2,476.35
Northern Star	Feb. 12, 1889	2,476.35
Kayuga	April 2, 1889	2,669.47
Seneca	June 8, 1889	2,669.47
Vulcan	July 10, 1889	1,759.08
Parks Foster	July 30, 1889	1,729.69
Castalia	Oct. 31, 1889	2,512.53
Saranac	Dec. 21, 1889	2,669.47
Manola	Jan. 21, 1890	2,325.99
Mariska	Feb. 19, 1890	2,325.99
Tuscarora	April 12, 1890	2,386.01
Maruba	May 17, 1890	2,311.01
Matoa	June 17, 1890	2,311.01
Republic	July 12, 1890	2,316.38
Norman	Aug. 30. 1890	2,344.48
Saxon	Oct. 15, 1890	2,348.43
German	Nov. 19, 1890	2,348.43
Briton	Dec. 30, 1890	2,348.43

The Grecian and Roman, which were for the same fleet as the last four named in the foregoing table (Menominee Transit Co.), were not launched until the spring of 1891. Three steamers in the above list, the Northern Star, Kayuga and Norman, are sunk in deep water. Lake Superior has the Northern Star, Lake Michigan the Kayuga and Lake Huron the Norman. All were sunk in collision.

Improved Business Outlook.

A general meeting of the association of Bessemer ore producers has been called for Saturday of this week, and it is expected that the improved condition of the pig iron market will prompt an earlier settlement of affairs of the association for 1898 than was expected a few days ago. All hope of including Mesabi companies in the association has been abandoned, and it is quite probable that the advance over last year's prices will be less than 25 cents a ton. The action of the Carnegie company in purchasing a large quantity of pig iron is certain to have a beneficial effect on the iron market generally. The average price paid for this iron was probably very close to the actual cost of production at the present time, but it is thought, nevertheless, that the Carnegie company, which is heavily interested in coke, and also in ore since its purchases in the Lake Superior region, may have been prompted to this transaction with a special object in view regarding the iron market.

In vessel circles everything awaits sales of ore. The owners of lumber carriers, who have been operating their vessels at a loss in most cases for two or three years past, will meet at the Hotel Normandie in Detroit on the 15th inst., with a view to in some way unite their interests. This meeting, which is called by Mr. A. M. Carpenter of Port Huron, should be attended by all owners of lumber vessels. There is certainly opportunity at this time for the betterment of the lumber carrying trade if the owners of lumber vssels will attend the Detroit meeting and lay aside small differences in order to save themselves from another season of general loss.

A Deckhand's Neckties.

"I dropped into the United States court here a few days ago," says a Detroit correspondent, "and heard some amusing testimony in the Florida-Roby collision case. As usual the crew of the sunken vessel presented several large bills for wearing apparel, including everything from rubber boots to silk neckties. One deckhand claimed to have lost five silk ties and his bill for them was $2.50, or 50 cents each. Attorney Goulder had the witness in hand and in a very grave manner asked if the neckties were all new. The witness answered that they were not, and presented a very funny spectacle on the stand when he was asked if it would not be fair to make a reduction for second-hand ties. Then Mr. Goulder asked him what wages he was getting and when he said $12 a month the judge had to cover his face. Every member of the crew from captain to deckhands had bills of $30 to $70, and those of the deckhands were the largest."

The Detroit steamer Senator is loaded with 320,000 bushels of oats at South Chicago.

MARINE REVIEW

DEVOTED TO LAKE MARINE AND KINDRED INTERESTS.

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The books of the United States treasury department on June 30, 1896, contained the names of 3,333 vessels, of 1,324,067.58 gross tons register in the lake trade. The number of steam vessels of 1.000 gross tons, and over that amount, on the lakes on June 30, 1896, was 383 and their aggregate gross tonnage 711,034.28; the number of vessels of this class owned in all other parts of the country on the same date was 315 and their tonnage 685,204.55, so that more than half of the best steamships in all the United States are owned on the lakes. The classification of the entire lake fleet on June 30, 1896, was as follows:

	Number.	Gross Tonnage.
Steam vessels	1,792	924,630.51
Sailing vessels and barges	1,125	354,327.60
Canal boats	416	45,109.47
Total	3,333	1,324,067.58

The gross registered tonnage of the vessels built on the lakes during the past six years, according to the reports of the United States commissioner of navigation, is as follows:

Year ending June 30. 1891	204	111,856 45
" " " 1892	169	45,968.98
" " " 1893	175	99,271.24
" " " 1894	106	41,984.61
" " " 1895	93	36,352.70
" " " 1896	117	108,782.38
Total	864	444,216.36

ST. MARY'S FALLS AND SUEZ CANAL TRAFFIC. (*From Official Reports of Canal Officers.*)

	St. Mary's Falls Canals.			Suez Canal.		
	1896*	1895*	1894	1896	1895	1894
Number of vessel passages	18,615	17,956	14,491	3,409	3,434	3,352
Tonnage, net registered	17,219,418	16,806,781	13,110,366	8,560,284	8,448,383	8,039,175
Days of navigation	232	231	234	365	365	365

*1895 and 1896 figures include traffic of Canadian canal at Sault Ste. Marie.

Capt. Sigsbee, commander of the battleship Maine, who is envied by other officers of the navy on account of the prominence he has attained through taking an American man-of-war to Havana, is quite well known on the lakes. When in charge of the hydrographic office he visited all of the leading lake cities in the interest of the service which he represented and was very favorably received. "Capt. Sigsbee is a broad-minded officer," says the New York Times, "and has a creditable record. His career in the navy began at the Annapolis academy in 1859, and upon his graduation he went into service when there was fighting to be done. With Farragut he was at Mobile in 1864, at the passing of Forts Morgan and Gaines, and he was at Fort Fisher when that work was taken and the city of Wilmington fell into the hands of the Federal forces. His manner is not that of a man who would seek trouble unnecessarily, but those who have known him in the service say that his authority is felt by everybody over whom he has command, that he always has a 'strict ship,' and therefore a good ship without provoking any remarks about martinets or 'fussers.' His character is never discussed here, nowadays, without reference to his decision in the East river to run down a dock rather than sink a steamboat, an action that commanded the approval of the public just as it met with the approbation of the naval authorities who were required to investigate and report upon the circumstances. The captain is not a heroic figure, but is a rather short, compact man of wiry frame, dark hair and complexion, and quiet manners."

It is characteristic of admiralty law that it treats of things as persons. A ship, for instance, is regarded as a responsible moral agent. Repairs are charged to a ship in her own name, and payment is enforced against the ship herself by a proceeding against her, in rem, in which under a decree in admiralty she is sold and the proceeds applied according to law. So, too, a ship is regarded as having nationality as well as personality, and, further, like an ordinary citizen, as having a distinct domicile, or home port. The maritime law gives a lien to the material man who furnishes repairs and supplies to a ship. But in the United States this is limited to foreign ships or ships of another state. One of the most discouraging features of practice at common law is the familiar experience of the successful litigant in finding himself unable to satisfy his judgment; during the long course of the suit the defendant has become insolvent. Now, the admiralty begins where the common law leaves off, viz.: by seizing the ship and holding her as security for such judgment as may be rendered. Her owners may secure her release by giving a bond. So, in actions against the owners, if defendants cannot be served personally, by a writ of attachment, the ship is attached. The marshal, who knows his business, is unable to serve the defendant personally, but always succeeds in seizing the ship.

"If I were a dictator with absolute power in this republic," said Senator Wm. P. Frye at the recent banquet of the American Association of Manufacturers in New York, "I would build the Nicaragua canal, I would annex the Hawaiian islands, I would aid in the construction of a railroad from our southern border down to Terra del Fuego, I would establish swift steamship lines to China and Japan, to Australia and to every commercial port in South America, and then, by reciprocal treaty or in any other lawful way in which it could be done, I would participate largely in the trade of the Orient, and I would take entirely the trade of Mexico, of South America, and of the Central American states by the free admission of all our goods into them. Costly, say you? Yes, costly. There was never anything worth purchasing yet that did not have its price. Costly? Not so costly as to find yourself decreasing in profit from year to year and decreasing in demand at home from year to year; cutting down wages of your intelligent workmen from year to year and finally degrading and reducing them to the condition of the workmen of Europe. Why, gentlemen, that is so costly that it might—it might, I say—risk the life of the republic itself."

Vol. V of the transactions of the Society of Naval Architects and Marine Engineers will be issued from the office of the secretary, 12 West 31st street, New York, in about thirty days. This volume will contain all papers presented at the New York meeting of November last, together with the discussion attending the reading of these papers. The secretary of the society has just issued a small pamphlet giving contents of the five volumes of transactions of the society, and although the pamphlet does not say so, it is quite probable that any of these volumes may be purchased from the society. The binding is cloth and the size of page quarto. Vol. I contains 288 pages and sixty plates; Vol. II, 346 pages and sixty-nine plates; Vol. III, 300 pages and fifty-seven plates; Vol. IV, 209 pages and fifty-eight plates; Vol. V, 203 pages and sixty-seven plates. As it is especially desirable that the papers to be read at the sixth annual meeting of the society in November next should be in print and ready for distribution at least one month in advance, the council requests members who desire to submit papers or who have suggestions to make in that matter to communicate with the secretary at their earliest convenience.

Hon. F. W. Wheeler of West Bay City visited Washington a few days ago and in company with Congressman Wm. Alden Smith called on Assistant Secretary Roosevelt of the navy. It is said that after a talk with Mr. Wheeler regarding the facilities of lake ship yards for the construction of vessels of war, the assistant secretary was very emphatic in declaring that whatever influence he has in the department will be exerted to enable lake ship builders to compete for the construction of vessels of war. He says that he is opposed to the maintenance of war vessels on the lakes, but he "pounded the table," according to one dispatch, while declaring that lake builders should be given an opportunity to bid for the construction of such ships as may be taken from the lakes to the coast. The treaty memorandum relating to this matter is again up in Washington and it is said that Senator Hanna will take a hand in trying to bring about the desired modification.

Owing to a fire on Jan. 28, that destroyed the building in which the office of National Secretary Thomas F. Dowd of the Marine Engineers' Beneficial Association is located, Mr. Dowd has his office under his hat just now, but expects to give prompt attention to matters pertaining to the order in a few days. He has issued a circular to branches of the organization all over the country asking for their assistance in straightening out affairs of the secretary's office and for their indulgence until such time as the office can again be got in shape and a new stock of supplies obtained to meet the demands of those whose orders are now waiting to be filled.

City officials of Chicago are considering plans for a fireboat, which were submitted by Mr. A. W. Goodrich. The length of the boat over all will be 118 feet, beam 24 feet and depth 11 feet 9 inches. It will have three sets of pumps, with a capacity of 10,000 gallons of water a minute. The capacity of the two boats now in use is 6,000 gallons a minute. The estimated cost of the new boat is $50,000, and the expenditure was provided for by ordinance some time ago. It is expected that the new boat will be ready for service in the spring, and that it will be assigned to duty in the downtown district.

It is quite probable, according to reports from Philadelphia, that the Cramps will soon begin work on three first-class steamships for the International Navigation Co., to run between New York and Antwerp. Each of the vessels will be of 8,500 tons capacity and they are intended for both the passenger and freight service. They are each to be 510 feet long, 58 feet beam and 37 feet depth of hold. Triple expansion engines will drive twin screws, and the new vessels will be able to compete in speed and comfort with most of those now running to the continent.

President McKinley a few days ago arbitrarily removed Commander J. J. Brice, U. S. N., brother of ex-Senator Brice, from the position of commissioner of fish and fisheries and appointed as his successor George M. Bowers of West Virginia. The president first wrote to Commander Brice requesting his resignation, but he declined to give it and was accordingly removed. Commander Brice's friends say that his term of office had not expired, and besides his successor is not a man technically qualified to perform the duties.

In view of the rush of vessels of all kinds, most of them of a very poor kind, to Alaska, the secretary of the treasury has transmitted to the senate a draft of a bill creating a board of inspectors of steam vessels in the gold territory.

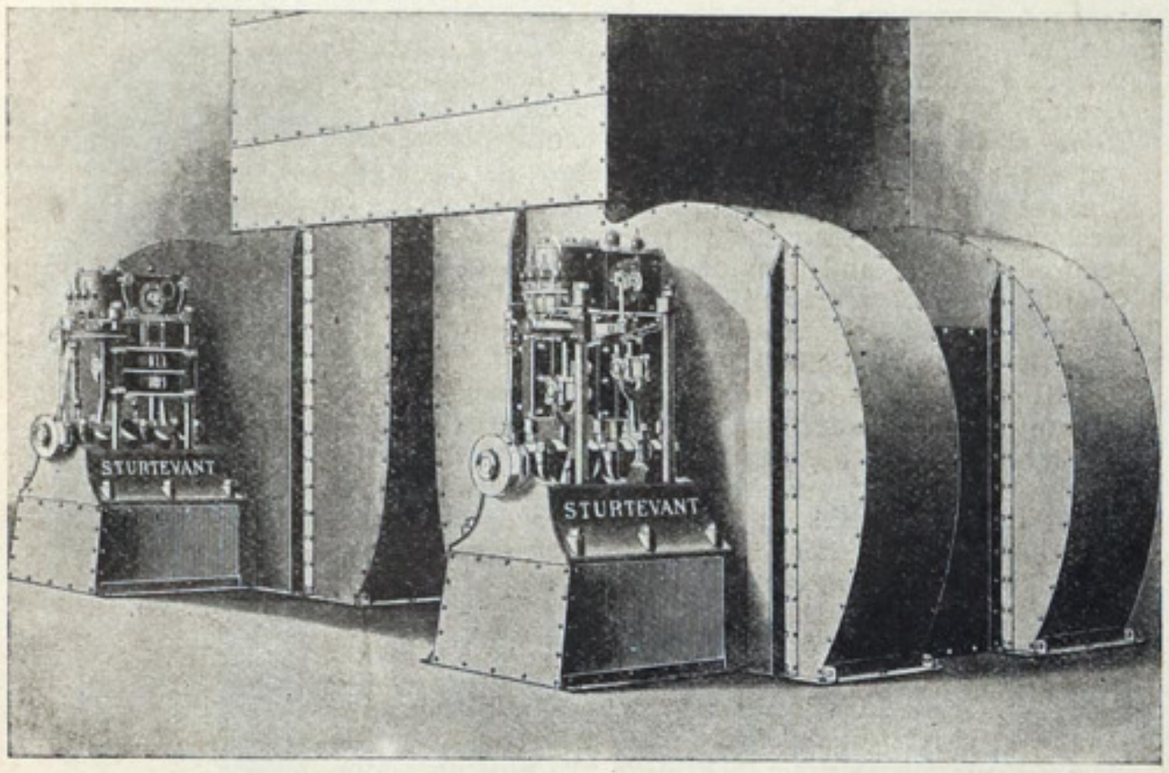
It is said that there are forty candidates for the position of supervising inspector of steam vessels for the tenth district, with headquarters at New Orleans, made vacant by the death of Matt. O'Brien.

Altogether eighty-five vessels are in course of construction for the French navy. Of these, twenty, which have not yet been commenced, will be put in hand in the course of this year.

The English admiralty recently placed orders for five new destroyers of larger dimensions and higher speed than those last constructed.

Mechanical Draft.

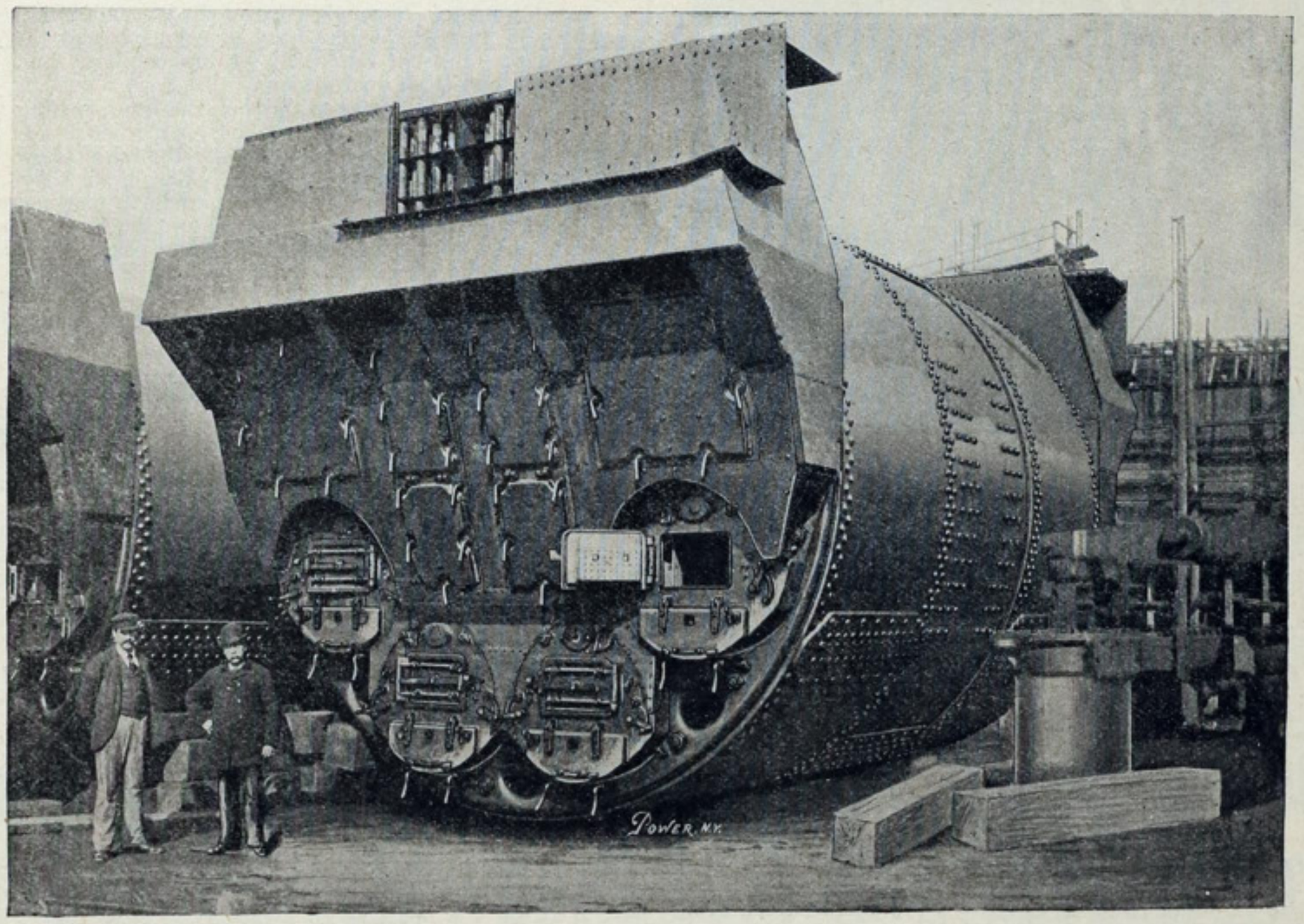
On the lakes, more so than in any other part of this country, engineers are prompted to study the subject of mechanical draft. The two best systems of draft for steamships, Howden and Ellis & Eaves, are repre-



STURTEVANT FANS FOR PRODUCTION OF INDUCED DRAFT IN CONNECTION WITH ELLIS & EAVES SYSTEM ON S. S. KENSINGTON.

sented by special agents on the lakes, the former by the Detroit Dry Dock Co. and the latter by the Globe Iron Works Co. Only a few days ago the Globe company contracted to equip another ship, the new Mitchell steamer of Cleveland, with the Ellis & Eaves system, and they will have the advantage in a new boat of adjusting all features of design—machinery, boilers, draft appliances, etc.—so as to obtain the best results. The Detroit company already has a list of some fifty-two lake steamers that are equipped or are being equipped with the Howden hot draft. It would seem therefore that there is no question regarding the permanence of this radical departure in boiler practice, and the progressive engineer will do well to study its principles if he has not already done so.

The B. F. Sturtevant Co. of Boston offers a special opportunity in this regard. Short reference was made in a recent issue of the Review to the book, "Mechanical Draft," published by this company. Although intended, of course, as an advertisement for the Sturtevant company, this book is not to be compared with the ordinary run of advertising literature. The subject of mechanical draft has been discussed at greater or less length in the technical press and before various engineering socities; but in all cases such discussion has been limited. In this book of about 400 pages the subject is given the treatment that its importance demands. It is discussed in all its aspects, and the best feature is the general evidence of a desire to give the whole matter impartial treatment. In so far as possible, all statements relating to the character and advantages of different systems or devices have been quoted and references given. The character of engravings is shown by two that appear on this page. Tests of lake steamers as well as those of ocean liners are published in detail, and, as has already been said, the book not only represents the accumulated experience of over a quarter of a century, but its preparation has required nearly two years of most careful study and investigation by an expert in this work. Much of the information could not be obtained by anyone else. It is published in pursuance of the established policy of the Sturtevant company to always thoroughly inform the engineering public regarding the specific principles and applications of the various systems which it has presented.



BOILER FOR THE AMERICAN LINE STEAMER ST. PAUL EQUIPPED WITH HOWDEN HOT-DRAFT APPLIANCES FOR USE WITH STURTEVANT FANS.

Origin of the Terms "Starboard" and "Port."

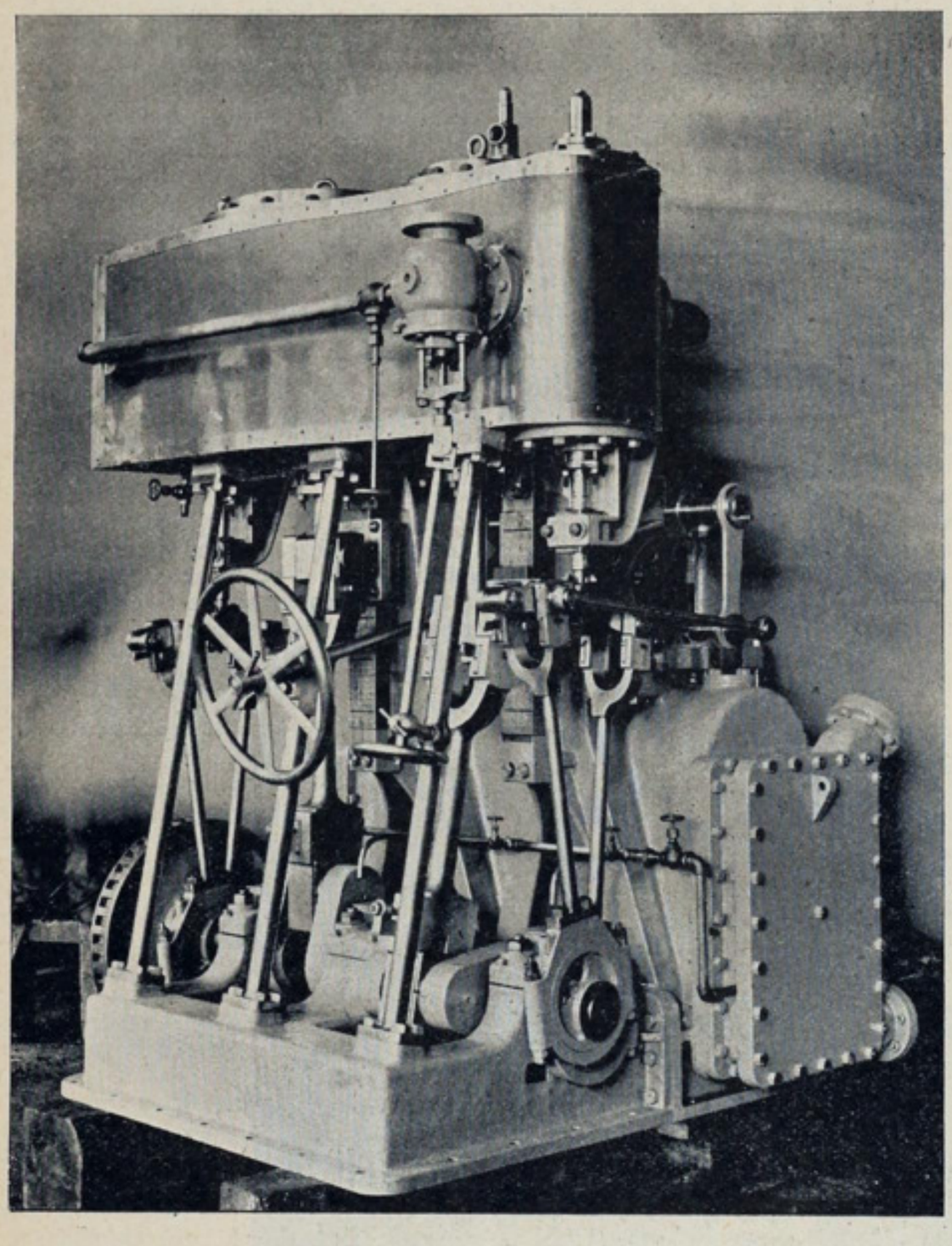
Referring to the item recently printed in these pages concerning the origin of the terms "starboard" and "port," a correspondent has made the point that the former term has been in use in the English language from a remote period, occurring in Anglo-Saxon as "stear-board," and in middle-English as "stere-board," while in later times it was written 'ster-board," from which it developed into its modern form "starboard." It originally meant, so our correspondent says, the board, or side, of the ship on which the man who steered it was placed. It may be called a native English word as distinguished from one of imported origin, and it possesses a special interest in its indication of the method of propelling and steering in vogue from very early times. The ancient mariner could run before the wind with his single square sail, but he could deviate only a few points on either side. Unless therefore the direction of the wind agreed with the course of the vessel, it was necessary for him to be in constant readiness to modify his direction by the help of the oar.

The illustrations of early English manuscripts and the later figures of tapestries exemplify the old square rig, with auxiliary oars and steering from the side. In these examples one or more heavy oars are used at the bow and on one side only; whilst the course is kept by a steersman with a lighter, and often paddle-shaped, oar, worked near the stern, and invariably on the starboard side of the ship. This method of rowing survived until quite recent times, and was well shown on the coal "keels," which added so picturesque a feature to the navigation of the river Tyne. These vessels were manned by crews consisting of three men and a boy; they had a single square sail, and carried some twenty odd tons of coal. When unable to run before the wind resort was had to rowing, and this was done by a single heavy bow oar, worked on the port side by two men and a boy, whilst the skipper kept the course, rowing in time with a lighter oar, called a "swape," from the stern on the starboard side. The fixed rudder, hinged from the stern-post and operated by a tiller, was a later development in ship construction. The Tyne "keel" exemplifies the earlier practice of our ancestors in steering by an oar from the right side of the ship, and from this comes the designation for that side as the "steer-side," or starboard.—Cassier's Magazine.

Congressman Mahany of Buffalo takes up just four lines of print in his bill providing for the purchase or lease of the Erie canal by the United States. The measure in full is as follows: "Resolved, etc., that the United States enter into negotiations with the state of New York for the purpose of purchasing or leasing the Erie canal to the end that this waterway be made an arm of war and commerce for the general government."

Compound Engine for a Coast Steamer.

The illustration shows the engine of the steamer Estelle Randall, recently launched by Wm. E. Woodall & Co., Baltimore, Md. She is 116 feet long, and will run on the Potomac river. The engine is of the vertical direct acting fore-and-aft compound type, having cylinders 13 and 26 inches diameter, with a common stroke of 16 inches, and is designed for a piston speed of 600 feet per minute. The engine is fitted with surface condenser bolted to, and forming part of, the bed plate, the cylinders being carried on two cast iron columns bolted to condenser, with three finished steel columns on front. The bed plate is of box type with three main bearings of ample size, lined with Parson's white metal, this metal being used in crank pin brasses, thrust and spring bearings. The high pressure



valve is of the piston type, the low pressure being a double-ported Trick valve. The valves are operated by Stephenson link motion, having links of the double-bar type, and are reversed by hand screw gear. The crank shaft is built up of steel, having the crank webs and pin cast together with shafts of open hearth steel forgings, shrunk into same and keyed. The piston rods, connecting rods, valve stems, line and propellor shaft are all of mild open hearth steel. The air pump is a 6 by 10 by 12 inches vertical double acting, furnished by George F. Blake Mfg. Co., and is bolted to brackets cast on back of condenser to receive same. Feed pump is of the Blake duplex pattern, and is arranged to work automatically by a float in filter box. The circulating pump is of the centrifugal type, operated by direct connected engine, and was furnished by the Morris Machine Works, Baldwinsville, N. Y. Steam is supplied by a boiler of the locomotive type, 16 feet 6 inches long by 7 feet wide, having 39 square feet of grate surface and a working pressure 150 pounds.

Kearsarge Asbestos Metallic Packing.

The H. W. Johns Manufacturing Co., No. 100 William street, New York, is directing attention to a new production—Kearsarge asbestos metallic packing. A note from the asbestos department of the company says: "This packing is produced in both sheet and piston-rod shapes and is made from woven strands formed by twisting fine asbestos yarn around brass wire, the whole being coated with India rubber composition, making an exceedingly strong and flexible sheet or piston-rod packing, admirably adapted to high-pressure work. From the sheets we also make Kearsarge gaskets of any size and description. Due to the extreme flexibility found in this material, gaskets made from it will easily conform to any desired shape and lie flat. The small illustration of the famous old battleship Kearsarge has been selected as a trade mark for this packing."

The Crescent Ship Yard at Elizabethport, N. J., is crowded with work, as indicated by a list of contracts in the ship building number of the Review. It is now announced that additional water-front property has been purchased, and Mr. Lewis Nixon, manager of the works, is arranging to employ several hundred more hands and run day and night.

The Brackin Pipe Wrench.

The Brackin Manufacturing Co. of Cleveland is placing on the market a new pipe wrench, which is an improvement in several important points on types now in use. The construction and operation of the wrench are shown in accompanying illustrations, Fig. 1 representing the tool complete and Fig. 2 the four working parts in proper combination, indicating the distribution of strain. A pipe wrench is one of the most abused of tools, as it is frequently used for bending pipe and for other purposes that severely test its strength. One of the objects of this invention is to secure a wrench having a stationary jaw with a yoke firmly secured thereto, and provided with a movable drop-jaw, and so constructed that the fulcrum or bearing of the movable jaw will occur at that point of the wrench where the stock is the strongest. In constructing this new tool for its special work, that of turning a pipe, durability and strength have been regarded as prime features. The jaws and pawl are drop-forged from tool steel, special attention being given to tempering. The yoke and lever are drop-forged from machinery steel. The surface of the lever which comes in contact with the end of the pawl is casehardened, and the fulcrum rivet, in the under side of the arched portion of the yoke, is tempered. All parts are interchangeable, so that, if broken, any part can readily be replaced. The stationary jaw, shown in Fig. 2, fits securely on the lever and as the strain is upward, forms a lock joint. In turning a pipe the movement of the pawl is downward, making practically another similar joint. This formation and arrangement of parts relieves the yoke (shown in Fig. 1) of all strain.

FIG. 1. BRACKIN PIPE WRENCH.

Other important requisites in a pipe wrench are simplicity, quick adjustment and a construction that will prevent locking upon or crushing a pipe, and the makers are confident that they have also attained all these desirable qualities. The parts are simple, few in number and accurate in operation. Adjustment is readily made. By means of the pawl thumb piece, shown in Fig. 1, the teeth are disengaged, and the jaw being released, can easily be moved in or out. To operate in close quarters or to adjust for a smaller pipe, it is only necessary to push on the lever, resting the jaw on the floor or against the pipe, when it adjusts by the ratchet movement. This method shows how easily the wrench can be used with one hand. The object of the pawl thumb piece is merely to disengage the ratchet teeth. It bears no strain, as Fig. 2 clearly shows the strain is on the pawl and not on the discs in the side openings of the yoke. This is demonstrated by taking the four working parts, without yoke and rivets, and placing them on a pipe in proper position, as in the cut. The grip is as secure as if the yoke and rivets were in place and the parts will remain intact and turn the pipe, showing how well the lock joint principle has been worked out and how perfect is the distribution of the strain. Having a sensitive fulcrum, locking of the wrench upon a pipe is made impossible. It secures a firm grip, will not plane the pipe and releases its hold readily. A sidewise turn of the lever or a light pressure on the end of the jaw will free the wrench from the pipe. Crushing is prevented by the upper end of the movable jaw stopping when it strikes the top of the yoke. The wrench is made with a bright finish throughout or with parts japanned.

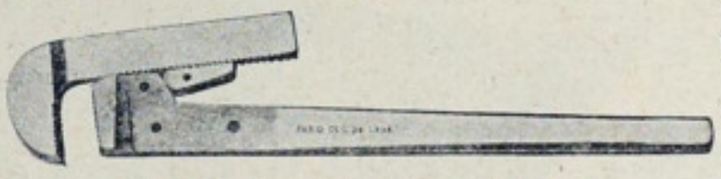


FIG. 2. BRACKIN PIPE WRENCH.

The election of officers at the annual meeting of the Illinois Steel Co., held in Chicago yesterday resulted in only one change, Elbert H. Gary being substituted on the board of directors in place of Isaac L. Ellwood. President Gates' report showed that over 1,100,000 tons of pig iron and spiegeleisen were made last year, and about 1,000,000 tons of finished product. The large output was accompanied by moderate prices, and compelled the company to seek foreign markets for the surplus product.

FOR SALE—STMR. ANDREW JOHNSON. This side-wheel steamer, formerly of the Revenue cutter service, is for sale. She could readily be applied to passenger service. Her vertical beam condensing engine (48 inches diameter of cylinder and 9 feet stroke) has recently been thoroughly overhauled and is worth more than is asked for the ship. For particulars address RESERVE, 409 Perry-Payne Bldg., Cleveland.

U. S. ENGINEER OFFICE, Duluth, Minn., January, 31, 1898. Sealed proposals for dredging in Portage Lake Ship Canals, Keweenaw Point, Mich., will be received here until noon, February, 28, 1898, and then publicly opened. Information furnished on application.
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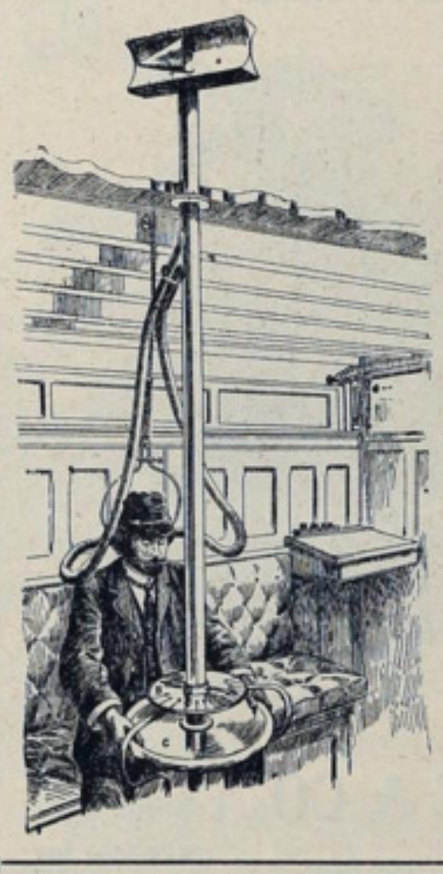

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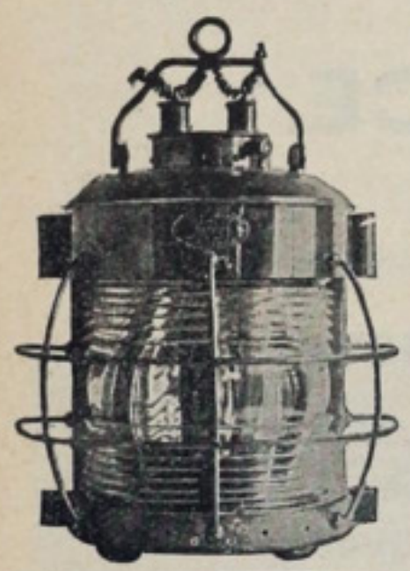

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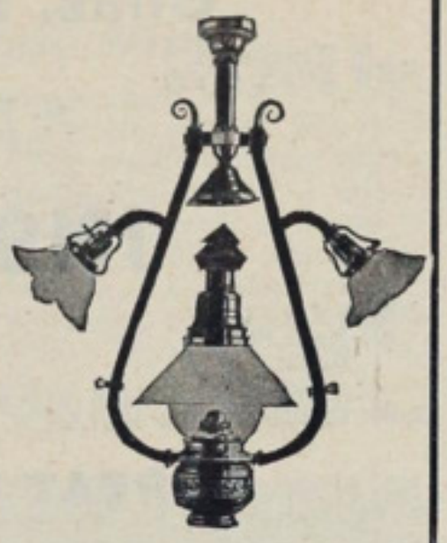

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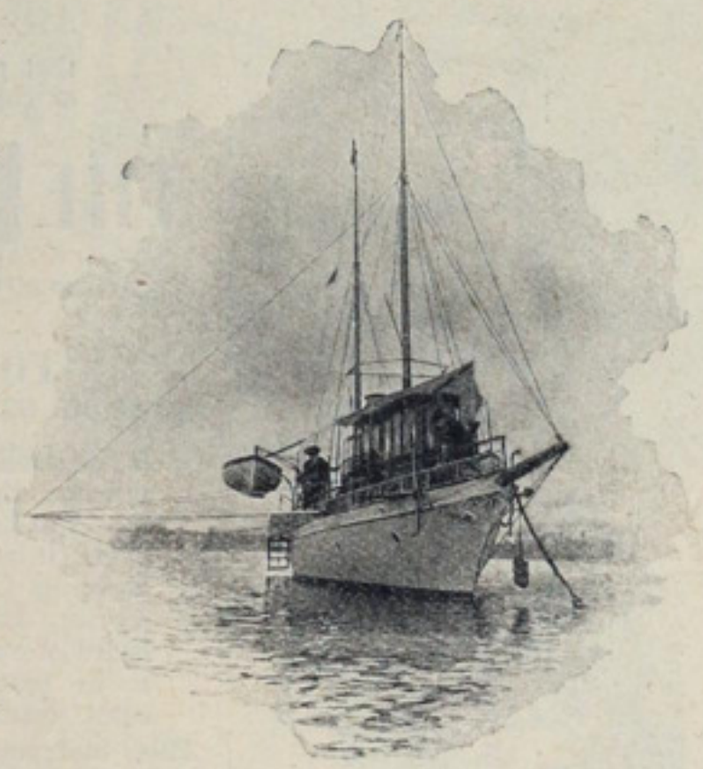

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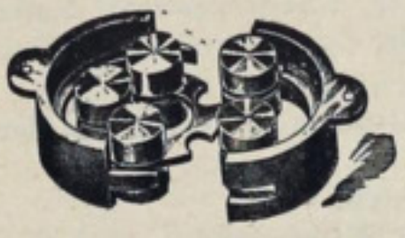

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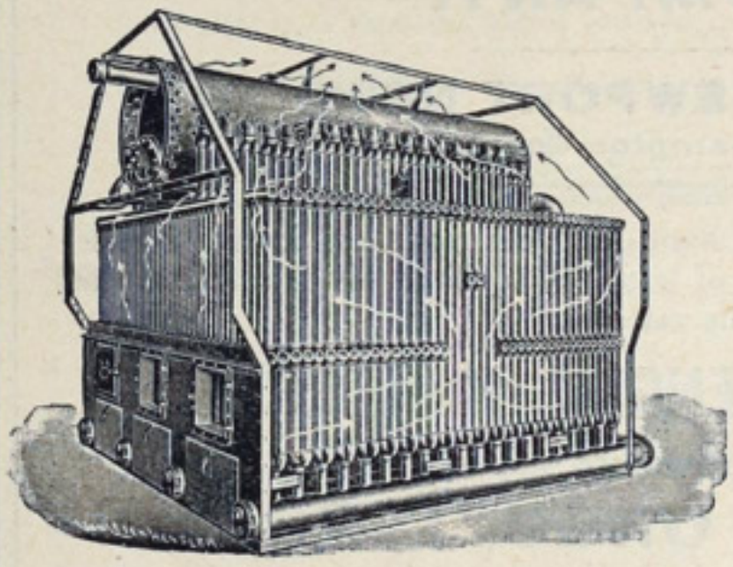

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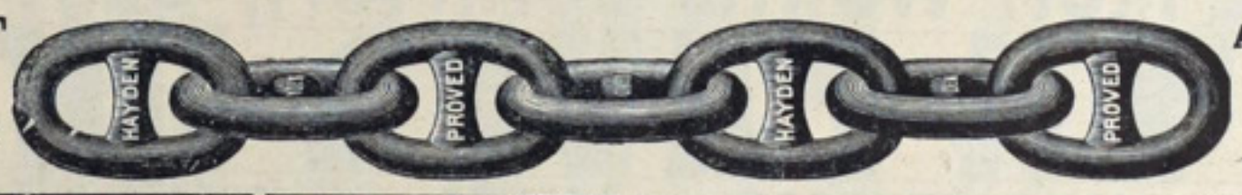

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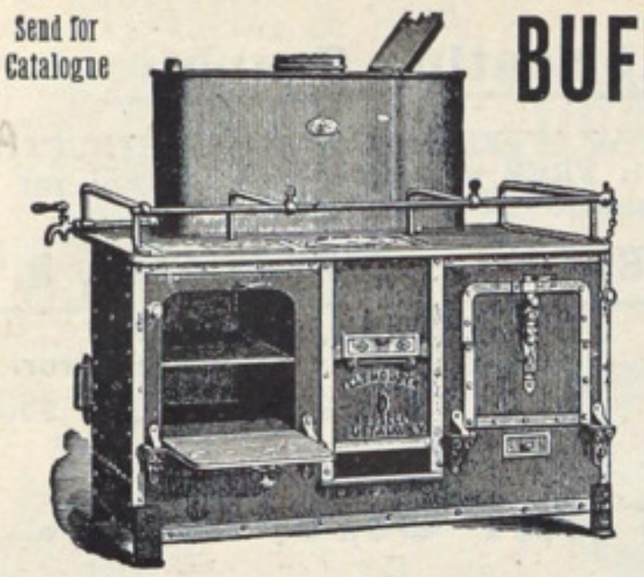

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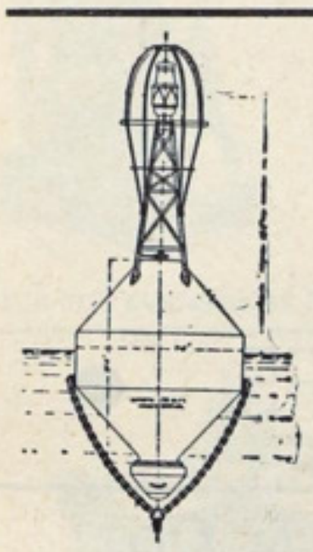

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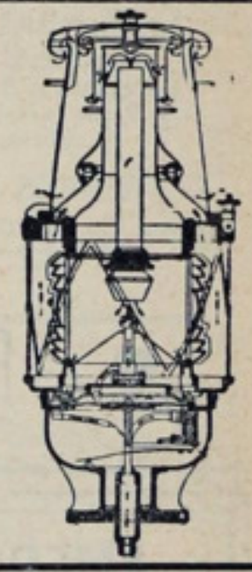

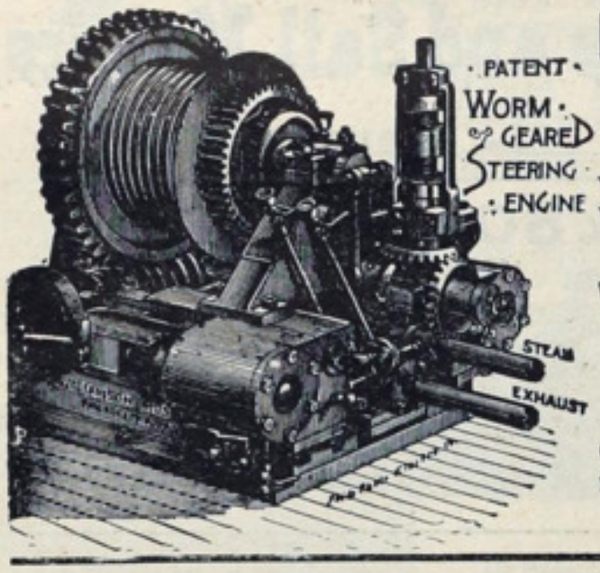

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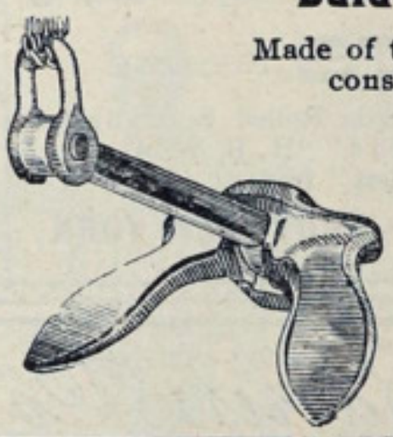

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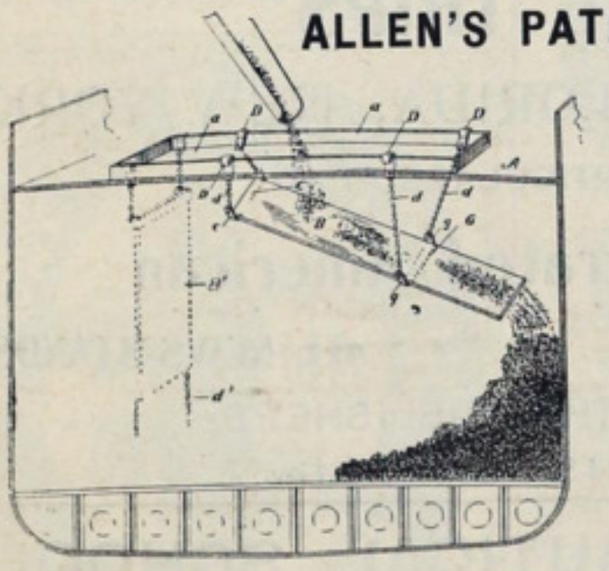

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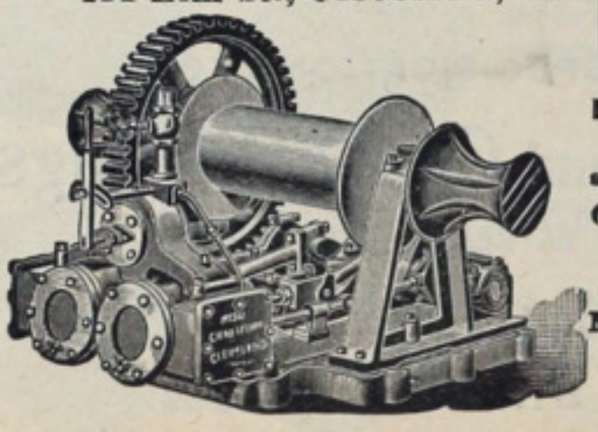

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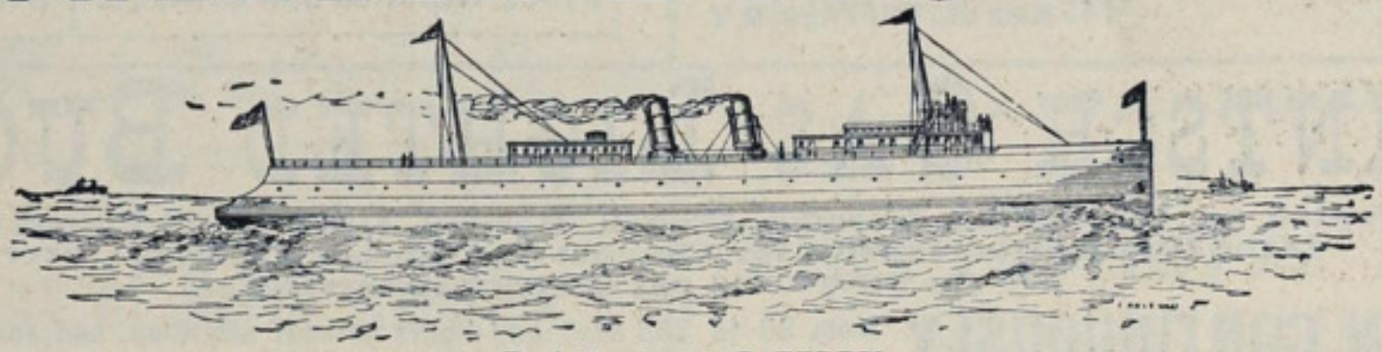

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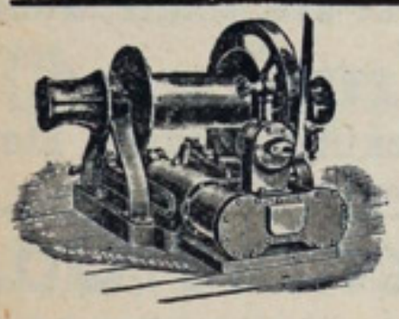

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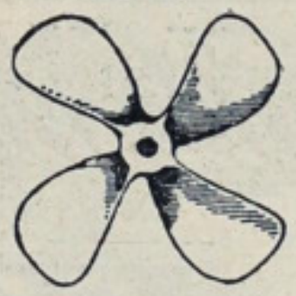

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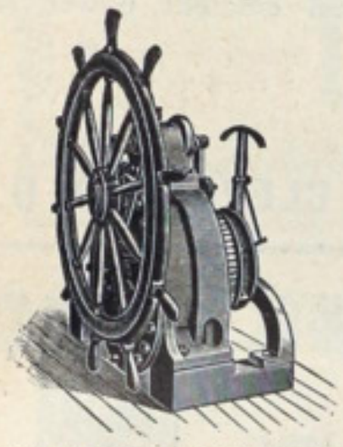

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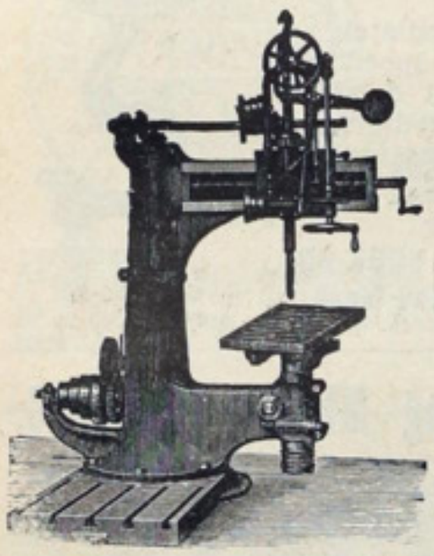

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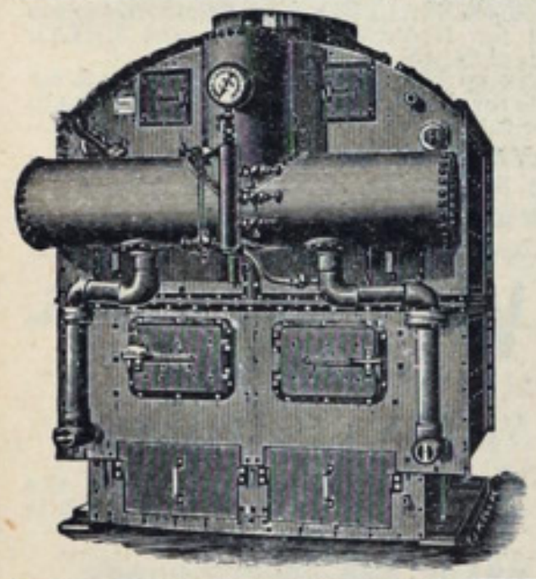

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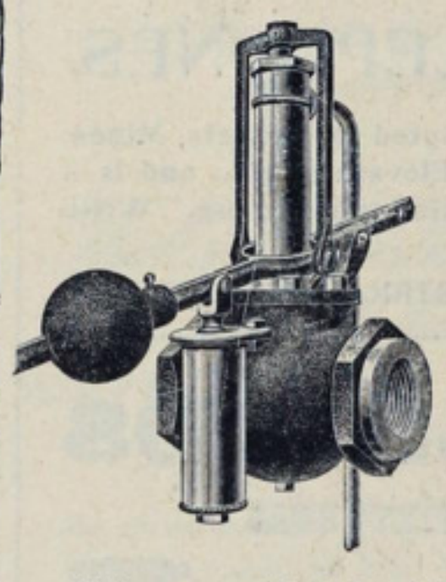

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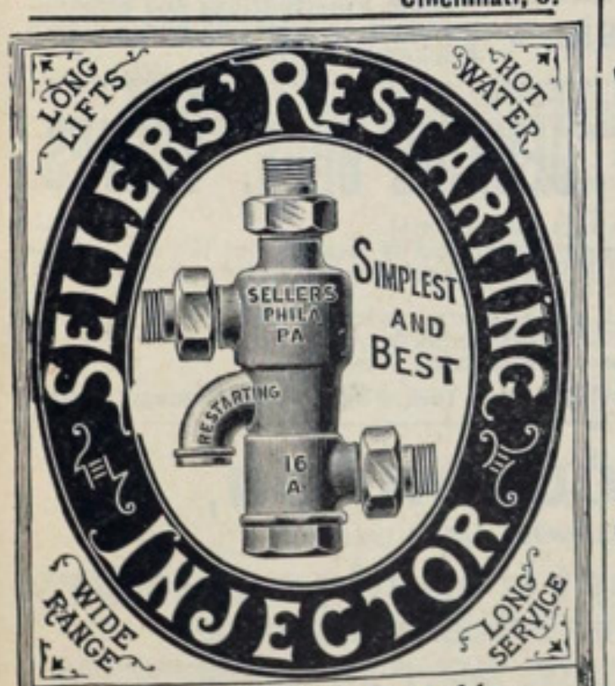

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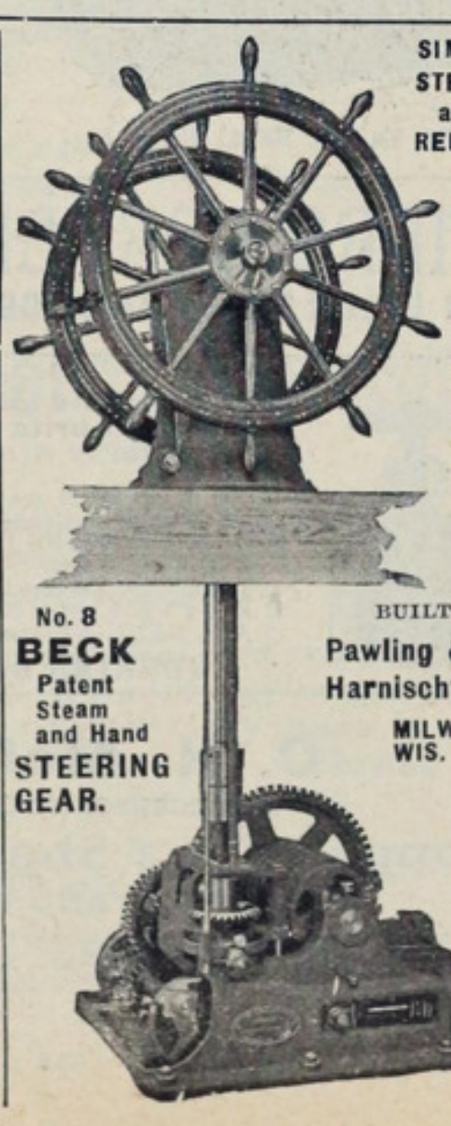

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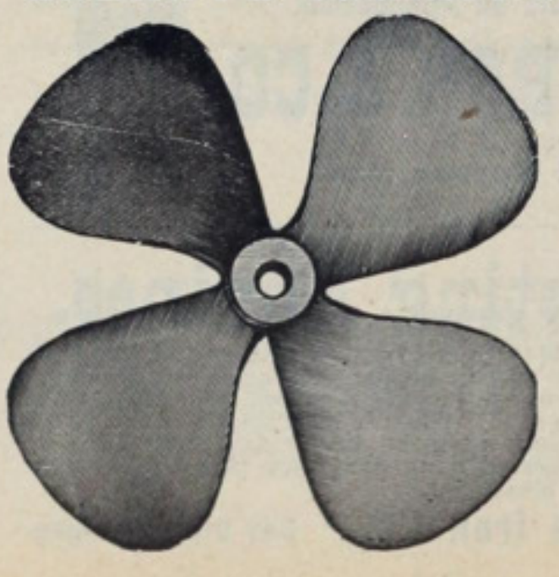

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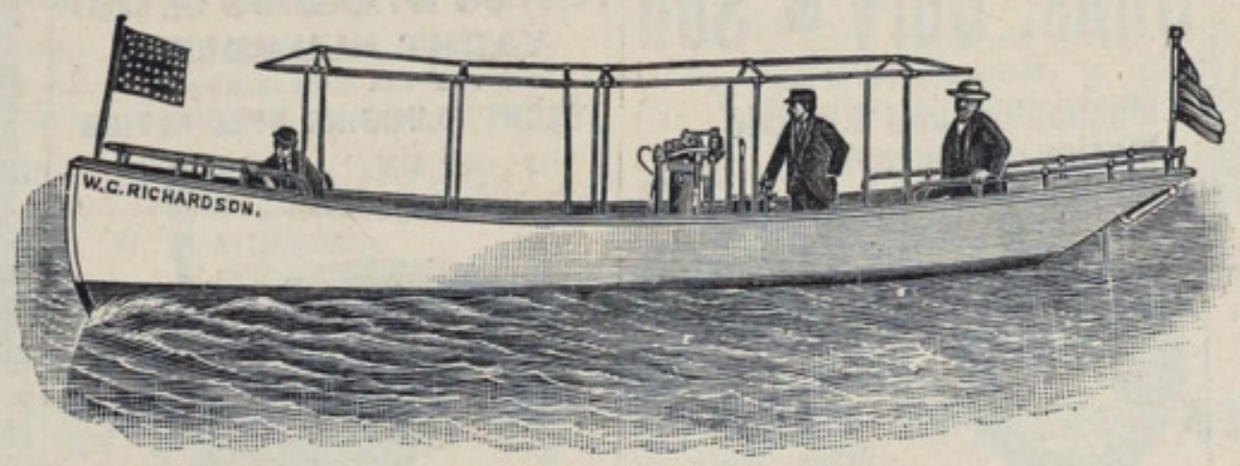

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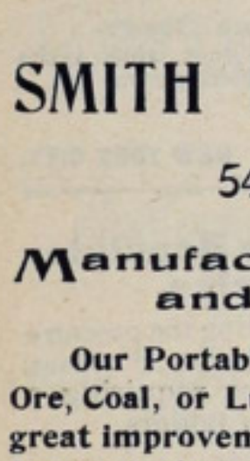

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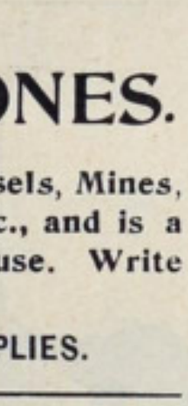

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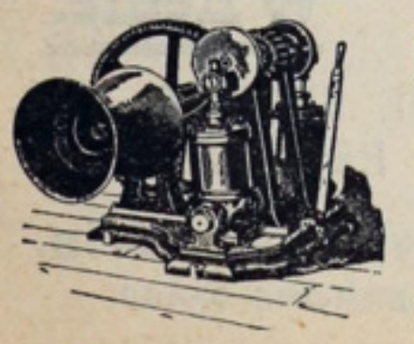

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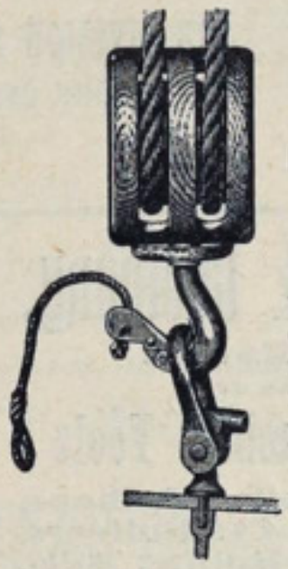

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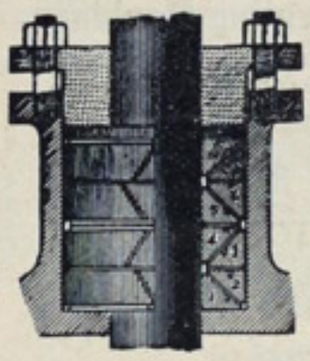

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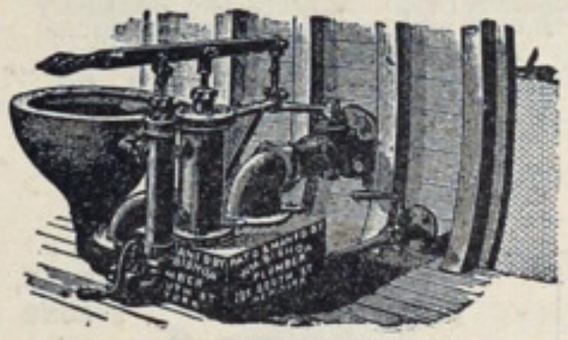

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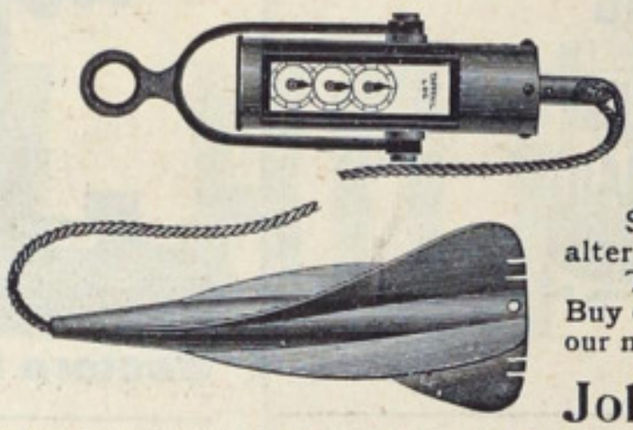

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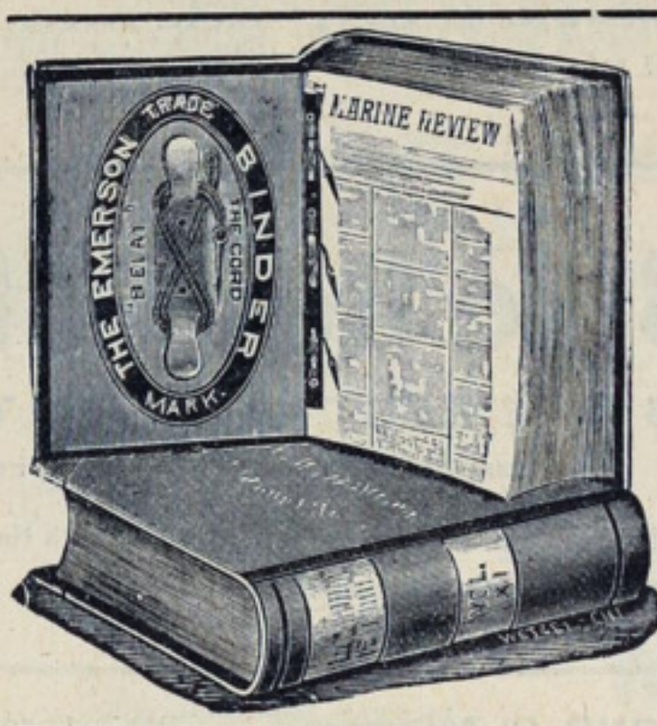

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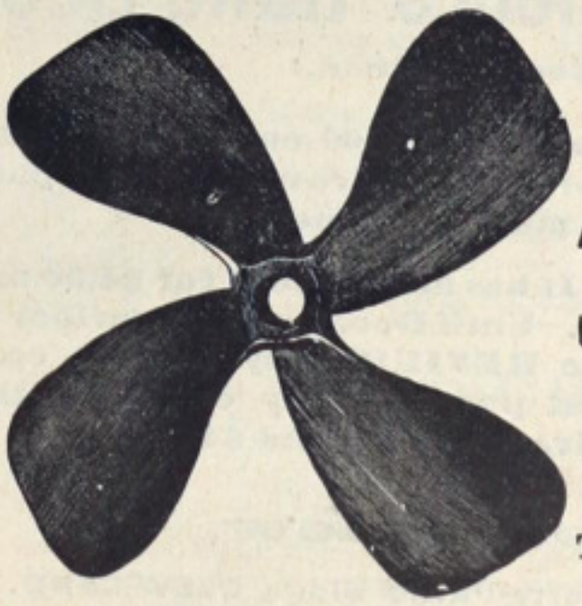

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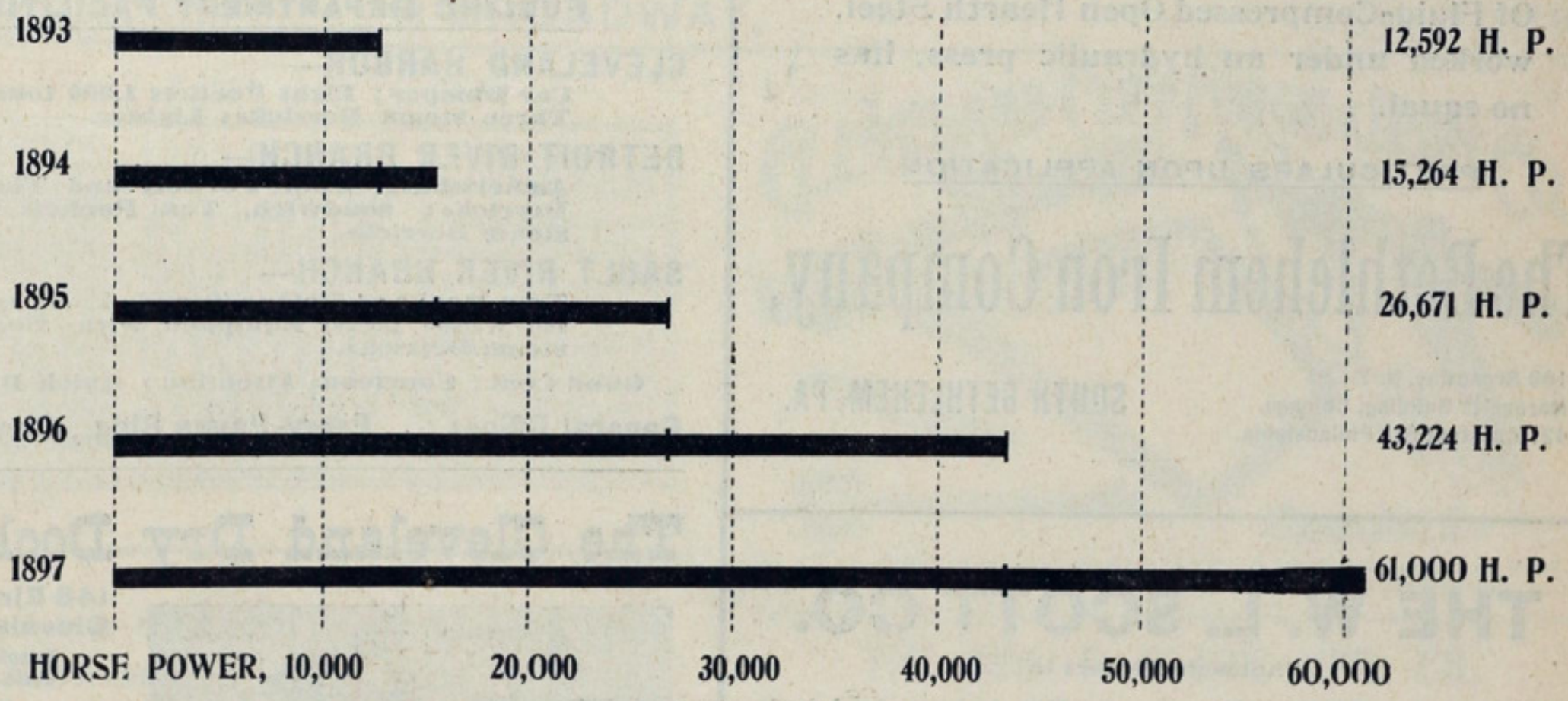

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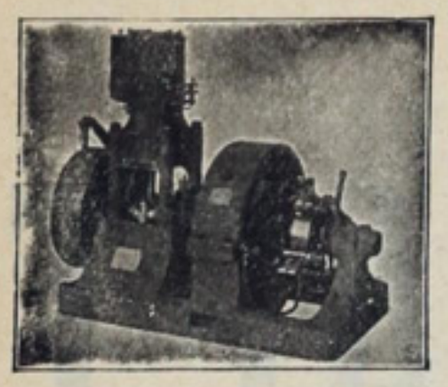

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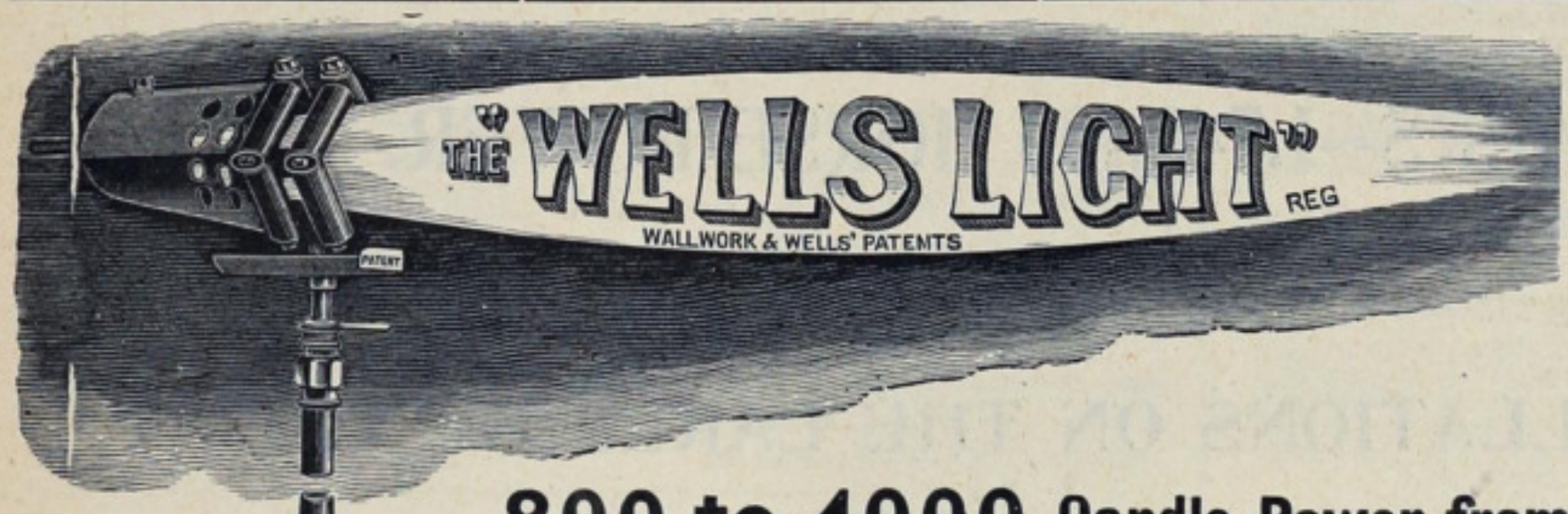

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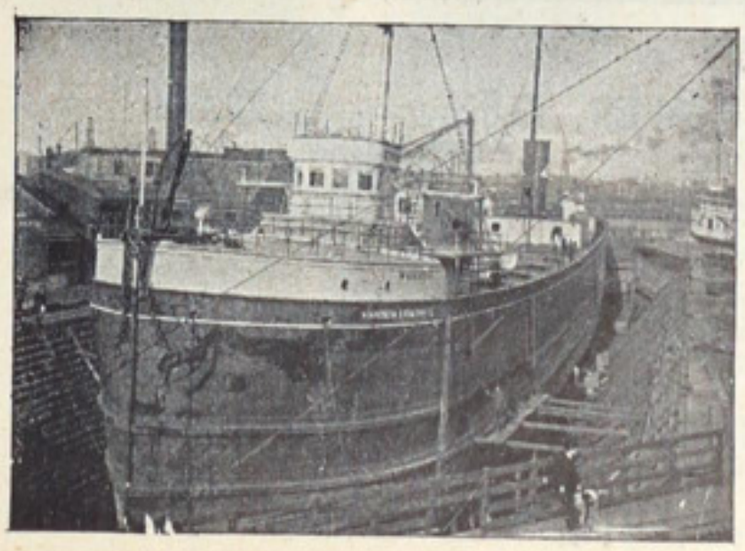

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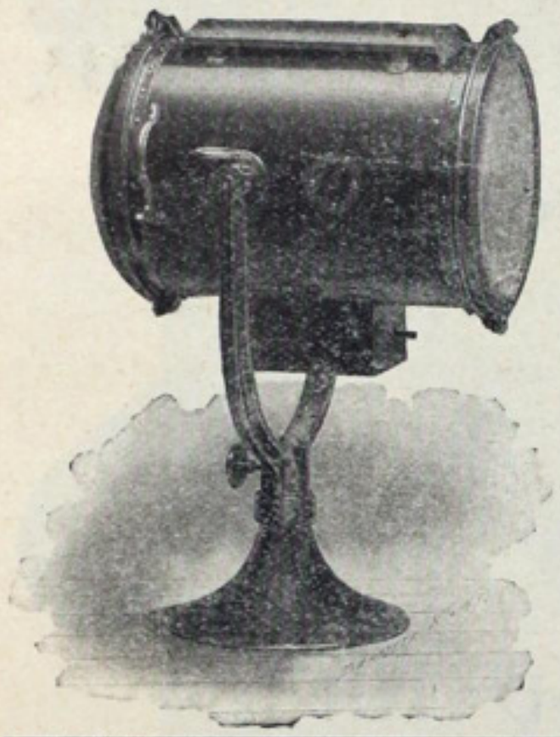

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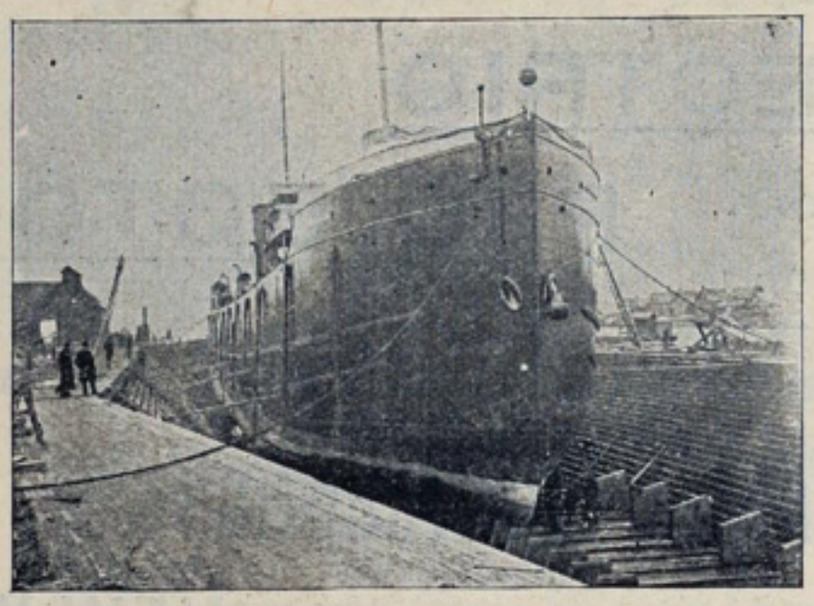

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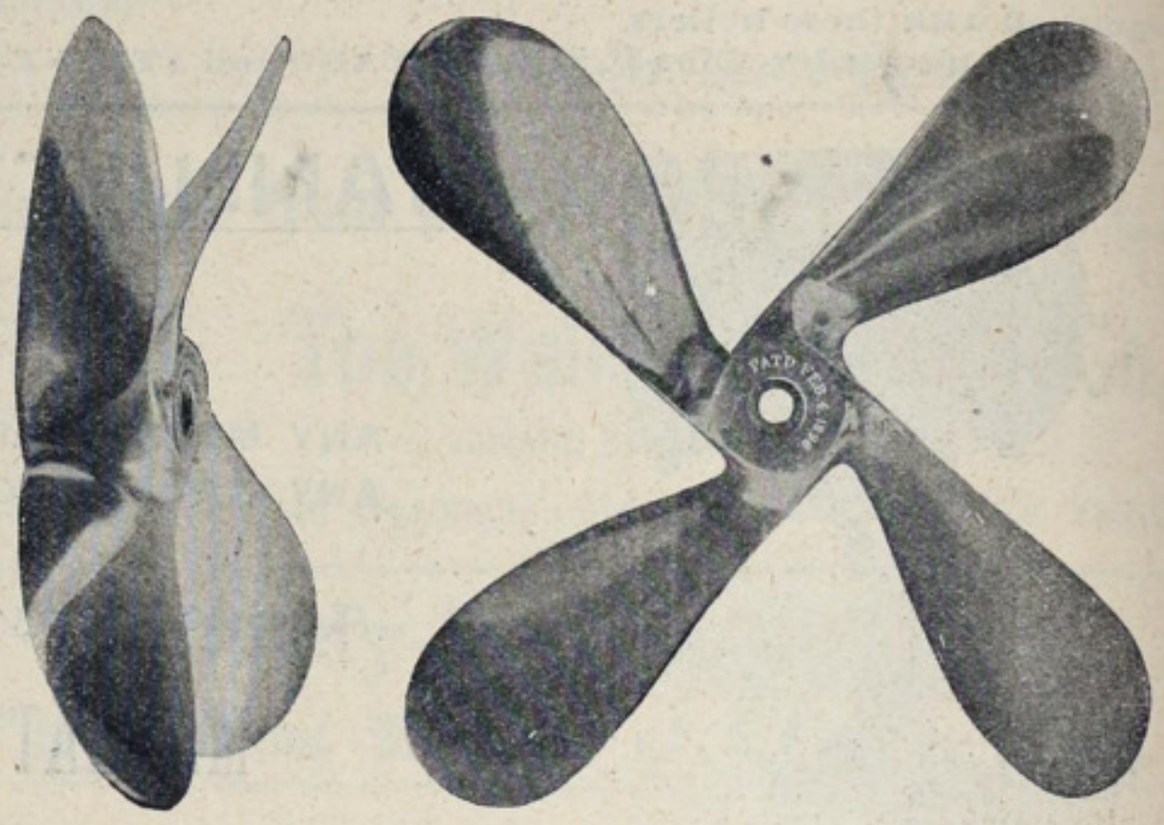

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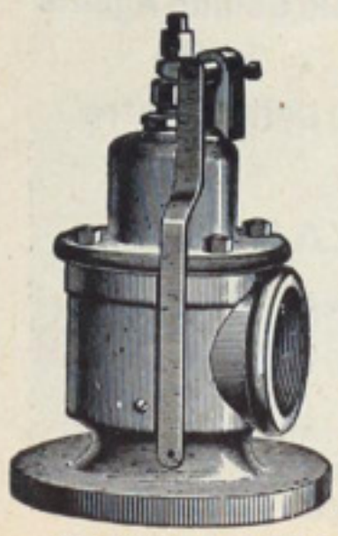

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